

# THE USEFUL KNOTS BOOK

HOW TO TIE THE 25+ MOST  
PRACTICAL KNOTS



Sam Furry

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HOW TO TIE THE 25+ MOST PRACTICAL ROPE KNOTS

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## INTRODUCTION

Anyone can tie “lots of knots” but a proper knot will be stronger and easier to untie. It will also help to conserve rope as you will use less (lots of knots uses more than needed) and having to cut the knots out is less likely since they are easier to untie.

There are many knots, far too many for the average person to remember. Fortunately, there is no need to remember them all. Just being able to tie a handful of knots is enough to see you through any situation when a knot is needed.

The Useful Knots Book is a no-nonsense how-to book on tying the 25+ most useful knots. It comes with easy to follow instructions and pictures for each of the knots, as well as tips on when to best use each knot.

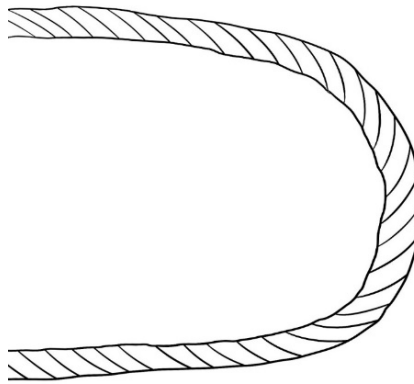
This book is an invaluable resource for the Survival Fitness Plan enthusiast but is also a very useful book for anyone who wishes to master 25+ extremely useful knots.

## COMMON TERMS

For ease of explanation when describing how to tie knots the following terminology will be used.

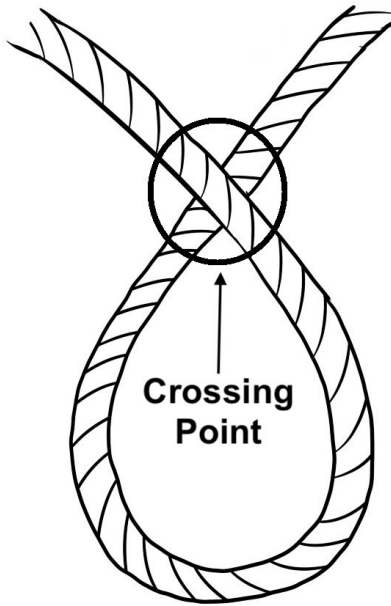
### **Bight**

Any bend in-between the ends of the rope which does not cross over itself.



### **Crossing Point**

The point where the rope crosses over itself.



## **Load**

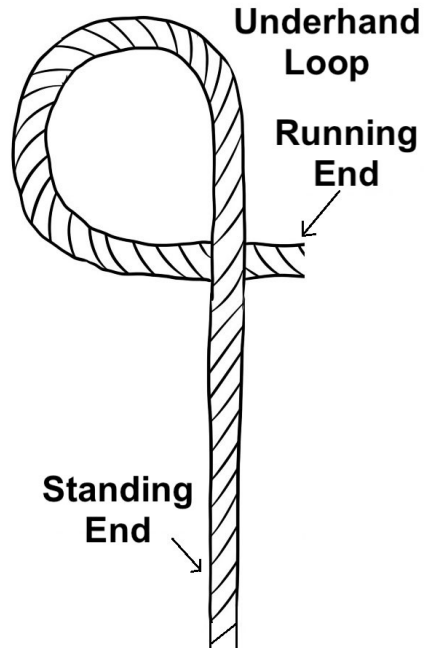
Refers to the weight of the object being secured, e.g., if you are pulling a log then the log is the load.

## **Loop**

Similar to a bight but the ends cross over, hence creating a closed circle.

An overhand loop is when the running end lies over the top of the standing part. An underhand loop is opposite (the standing part lies on top of the running end).





## **Rope**

A generic term used in this book that refers to cord, rope, string, twine, or whatever material which is being used to tie a knot.

## **Running End**

The part of the rope used to tie the knot. Also known as the working end.

## **Standing End**

The part of the rope other than the running end.

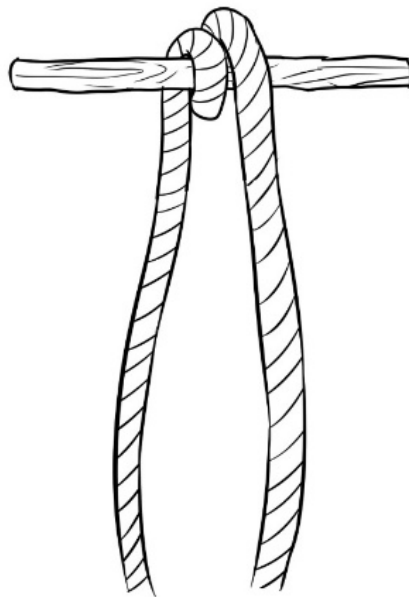
## **Shock Load**

Shock load occurs when there is a sudden increase in load. In such a case the load will be much more than the actual weight of the object. An

example of this is when a climber falls and his/her weight suddenly loads the rope.

## **Turn**

A single wrap of the rope around an object. A round turn (pictured) is where the object is completely encircled.



## **ROPE CARE**

Proper rope care will prolong its strength and usability. The same basic rules apply whether you have high quality climbing rope or hand-made twine from plant fibers.

### **Avoiding Deterioration**

There are many things that will increase deterioration. When possible, avoid the following:

- **Animals.** Animals can gnaw and scratch at rope.
- **Corrosives.** Chlorine, markers, oils, paints, petrol, and all other chemicals and corrosives should be avoided.
- **Dampness.** Constant damp conditions will weaken the structure of the rope.
- **Heat.** This includes fire, friction, electronic heat sources, etc.  
Beware that rope rubbing on rope will cut rope.
- **Direct Sunlight.** Ultra violet rays will deteriorate the rope.
- **Dirt.** Dirt can work its way into rope making it stiff and brittle.  
Avoid leaving rope directly on the ground and be careful of stepping on it.
- **Sharp edges.** Sharp edges will cut rope. Be careful of glass, metals, rock, etc. Place something between the rope and any sharp edges for protection, e.g., lay carpet over the rock you need to pass the rope over.

### **Preventing Fraying**

This refers to the protection of the ends of the rope. There are basically two ways to prevent fraying.

Fusing is done by melting the ends.

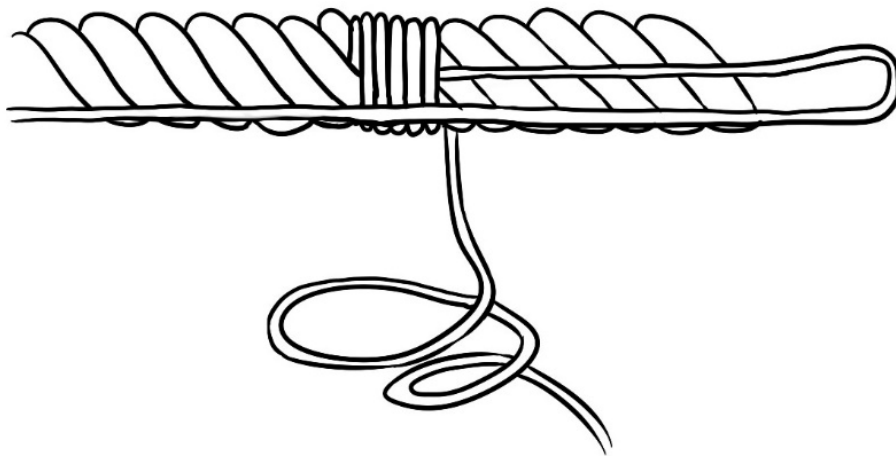
Whipping is done by using a smaller string to bind the tips of the rope.

Whipping is better than fusing but takes more time. A combination of whipping and fusing is the best.

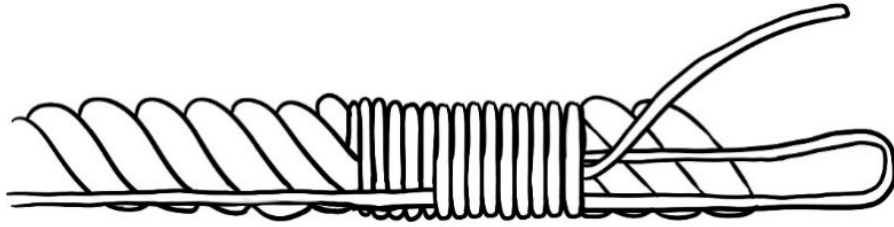
### **Simple Whipping Method**

There are a few ways to whip a rope. Here is a simple and effective way.

Lay your whipping string along the rope. Wrap around the rope five to ten times in such a way that the string will hold itself in place.



Make a bight with the string and then continue to wrap around the bight and the rope five to ten times. Thread the end of the string through the bight and then pull the other end so that the bight clamps down to secure the string in place. Trim the ends.



## **Cleaning**

Rope can be periodically cleaned to help prolong its use. It should be hand washed in cold water with mild soap. Rinse the soap out and then air dry it. Avoid direct sunlight and do not use any artificial heating source.

## **Flaking**

Flaking is a good way to make the rope ready-to-use as it removes kinks and ensures that it will feed out smoothly.

First take out any knots.

To flake the rope, find one end and lay it on the ground. Pull the rest of the rope through your loose fist and let it fall to the floor.

## **Coiling**

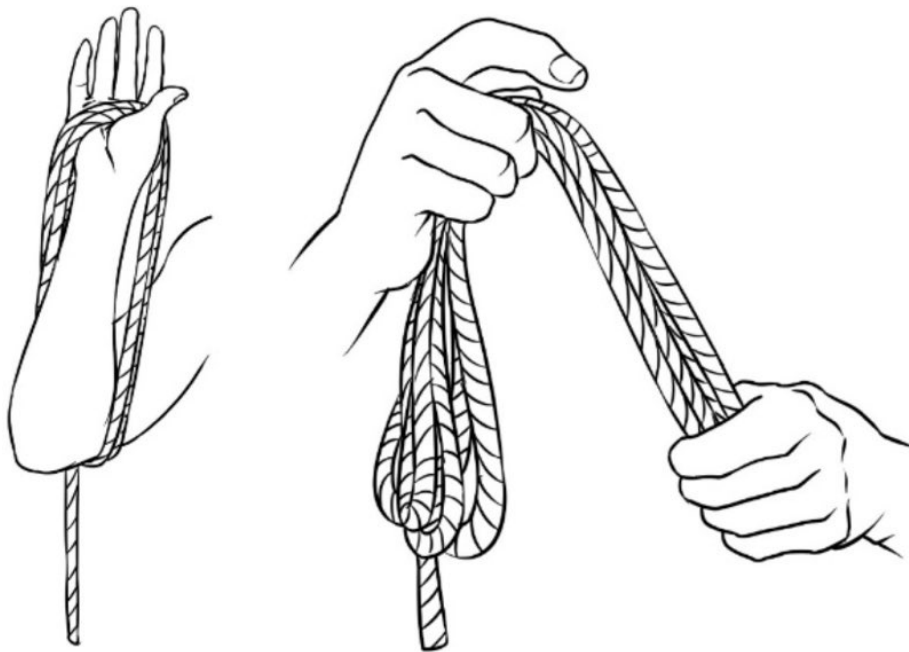
Coiling rope makes it easy to carry, use and store. It will prevent it from tangles and kinks.

There are many different ways to coil rope. Here is a fairly fast and easy method which can be adapted to different lengths, thicknesses and types of rope.

First flake the rope as previously described.

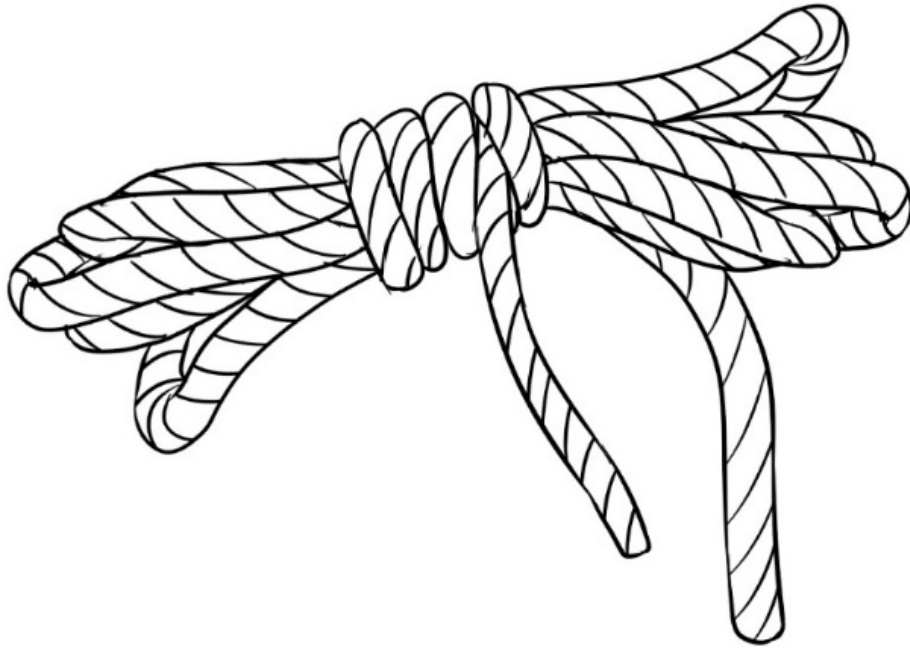
Hold the end of the flaked rope in your right hand. Use your left hand to wrap the rope around your right elbow and the palm of your right hand.

When you run out of rope use your left hand to grab the coils together in the center.



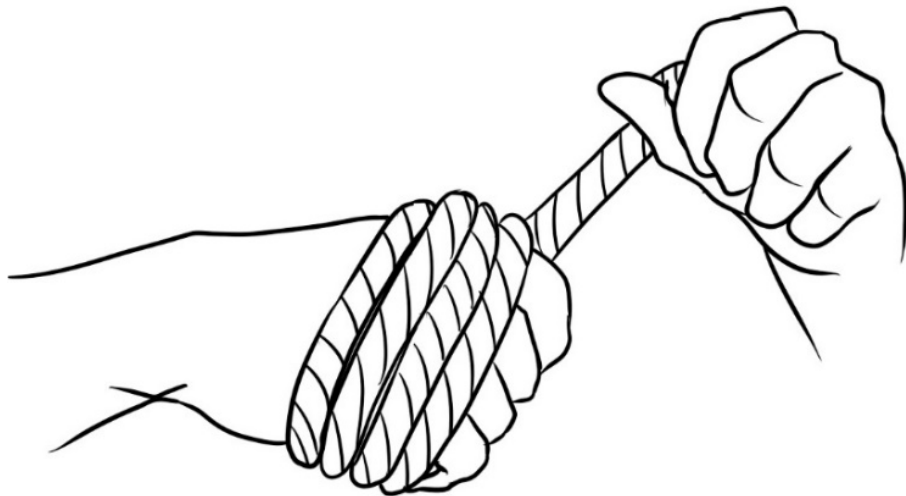
Fold the coils in half and use the loose end of the rope (not the end you held at the start) to wrap tightly around the bunch of coils.

To tie it off tuck the end of the rope under the last wrap you do and pull it tight.



When you want to use the rope unravel it in the opposite way, i.e., untie, unwrap, un-coil. This will prevent tangles.

For shorter rope you can wrap it around you hand instead of your hand/elbow.



Secure it in the same way. There is no need to fold it in half.

## **Storage**

Once the rope has been coiled either hang it in a cool dry area or place it in a bag. There are purpose-made rope-bags you can use if you need something specific. If not, then almost any bag will do.

Alternatively, you can flake the rope straight into the bag. Tie the ends to the bag loops so they are easy to locate. This may be preferred to coiling for ropes that you need quick access to use, e.g., rescue ropes.

## **Inspection and Retirement**

Retiring rope means to deem it unsuitable for use. For professionally manufactured ropes the company often gives a recommended usage, but ultimately it is up to you.

For rope that is used for bearing weight, especially for critical loads (such as a human), you should be stricter.

Inspect rope before and after every use. Look for fraying, burn marks, wear and tear, etc.

The rope's history of use is also important to consider. For example, if it has suffered a big shock load, is very old it, has been exposed to corrosives, has been poorly stored, etc. it will be weaker.



## **TYPES OF KNOTS**

Although in reality you can use any knot any way you wish, most of them have been designed for specific tasks, and therefore can be grouped into five broad categories.

For ease of learning the categories are presented in a progressive manner.

Stopper knots come first because they are often used as a base knot for others. They are also easier to tie. Then loops, hitches, bends, and finally lashing.

### **Stopper Knots**

Stopper knots are useful to add weight to rope, for use as handholds (e.g., in a lifeline), to stop rope from slipping through a hole, to stop cut rope from fraying, etc. They can also be used as a back-up knot as an assurance against knot failure, i.e., tied around the standing end.

### **Loops**

Loops are usually made by tying the rope to itself to create an enclosed circle. Their main use is as attachment points, e.g., as holds to climb up or to clip a carabineer onto it.

### **Hitches**

Hitches are useful to secure the rope to an object, e.g., a boat to the jetty or around a log you wish to drag.

## **Bends**

Bends are used to join two or more lengths of rope together. This can be useful to repair broken rope or for creating a longer length from two shorter ones.

## **Lashing**

Lashing is used to join objects together. It is very useful during construction.

## **CHOOSING THE RIGHT KNOT**

All the knots in this book are useful, but there will always be one that is more useful depending on what you need the knot for.

To decide which knot to use you must consider the characteristics of each knot. Gaining in one characteristic will (usually) mean compromising on another. You must find the knot with the best balance of these characteristics for the job you need it for.

### **Getting the Job Done**

Your choice of knot must be one that will fulfill the task it is needed for. For instance, a loop knot will not be as effective for binding two objects together as a lashing would.

### **Security**

Security of a knot is about its ability to stay tied and tight, i.e., not come undone on its own. Constant pressure (or lack of it), thrashing (in the wind or water), vibration, and other movements may compromise the security of a knot.

It will make sense to choose the most secure knot you can but remember that increasing one characteristic will decrease others, e.g., a very secure knot may become very hard to untie and perhaps fast release is a factor of the job it is required to do.

### **Strength**

Every knot will weaken the integrity of the rope, some more than others. The strength of the knot refers to how much the knot weakens the rope.

When the task at hand requires the rope to hold weight and/or take shock load, (e.g., climbing, rescue, dragging load), this characteristic becomes important, especially if specialized rope is not available.

### **Ease of Tying**

When something must be tied quickly or it is a repetitive job then ease of tying becomes more important. You do not want to spend five minutes tying a knot you have to repeatedly tie.

### **Ease of Untying**

There are circumstances where you may want the knot to be easy to untie, such as if you want to release the knot quickly without cutting the rope.

At other times you may want the knot to be more difficult to untie, such as when you want to make it difficult for the object (such as an animal) to release itself, or to stop other people from being able to easily untie it.

Another factor is how easy the knot will be to untie after it has done its job. Some knots are designed to be easy to untie even after considerable tension has been applied, or after the rope has swelled under water, or both.

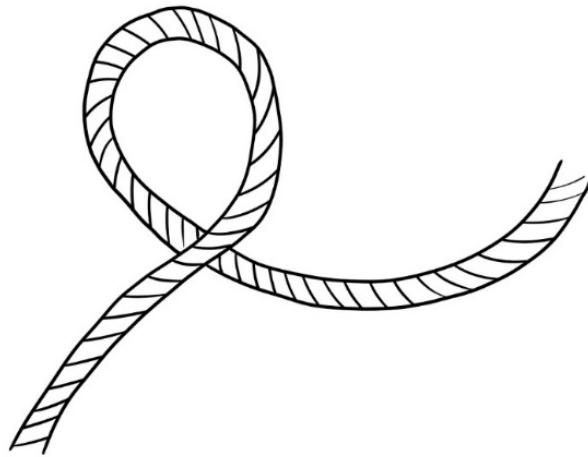
## STOPPER KNOTS

Stopper knots are useful to add weight to rope, for use as handholds (e.g., in a lifeline), to stop rope from slipping through a hole, to stop cut rope from fraying, etc. They can also be used as a back-up knot as an assurance against knot failure, i.e., tied around the standing end.

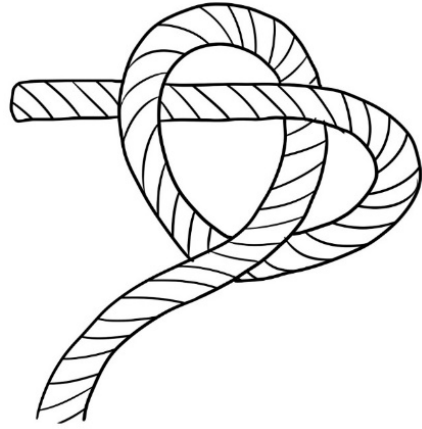
### Overhand Knot

This is the simplest of knots and is the basis of many other knots. Overhand knots are difficult to untie once they have been tightened.

Make an underhand loop by taking the running end of the rope and passing it under the standing end.

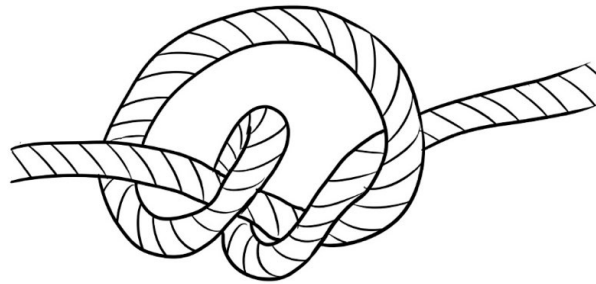


Pass the running end through the loop from the front to the back.

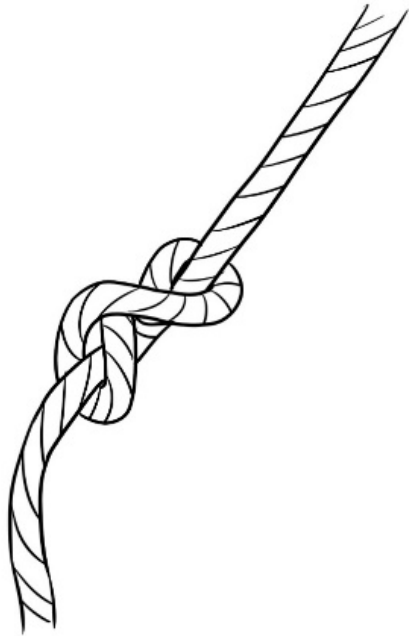


Pull both ends to tighten in.

The overhand knot can be made bulkier by passing the running end through the loop more times. Push the first turn into the middle of the knot.



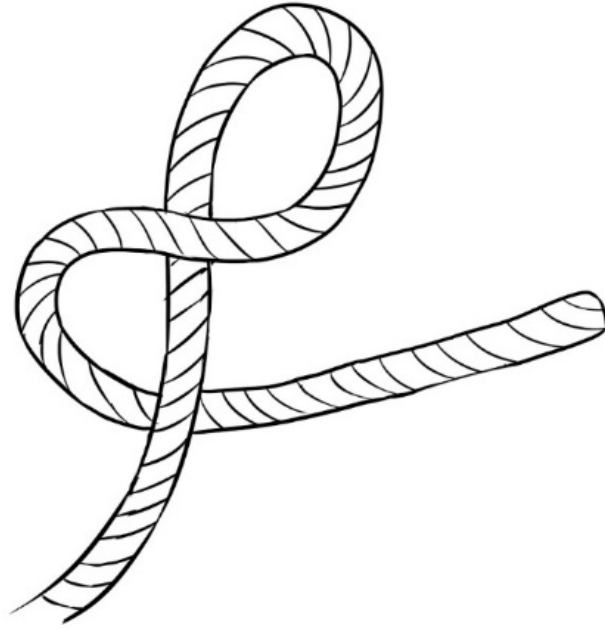
Doing it twice makes a double overhand and doing it three or more times creates a blood knot.



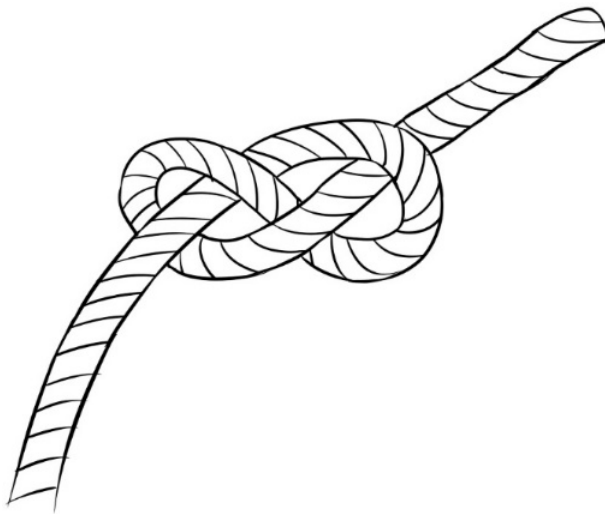
### **Figure 8**

A figure 8 knot can do all the same things as the overhand knot but is much easier to untie.

Make an upwards facing overhand loop and then make the running end pass back under the standing end.



Pass the running end back through the first loop you made. Pull both ends away from each other to tighten the knot.



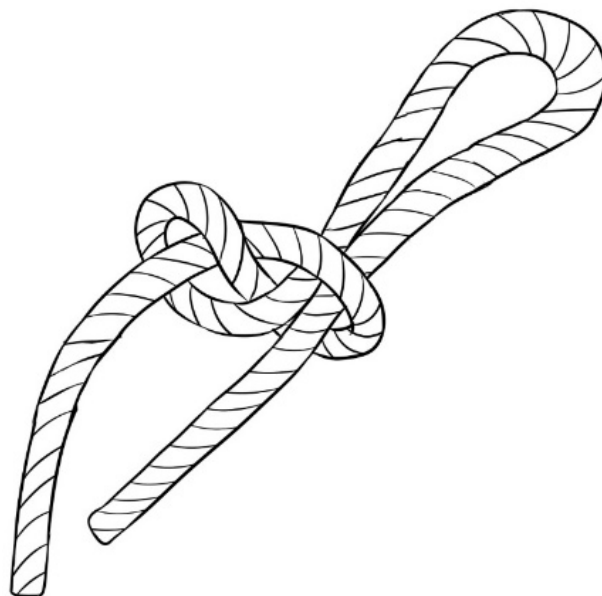
### **Quick-Release Figure 8**

You can make the figure 8 knot quick-release by putting the running end back through the first loop before tightening the knot.



To release the knot, pull the running end.

This could also be done with the overhand knot.



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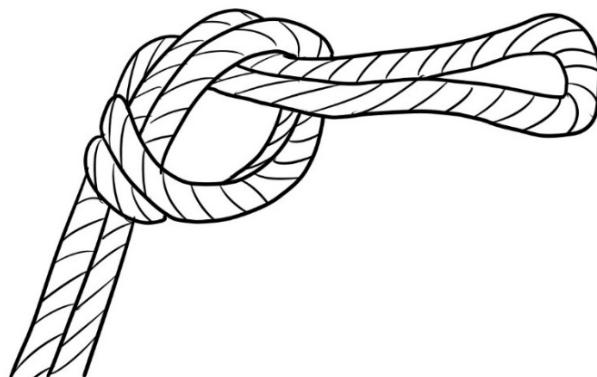
## LOOPS

Loops are usually made by tying the rope to itself to create an enclosed circle. Their main use is as attachment points, e.g., as holds to climb up or to clip a carabineer onto it.

### Overhand Loop

The overhand knot can also be used to create a loop. It works well with fishing line but can be hard to untie.

Double up the rope to make a bight and then tie an overhand knot in the bight.

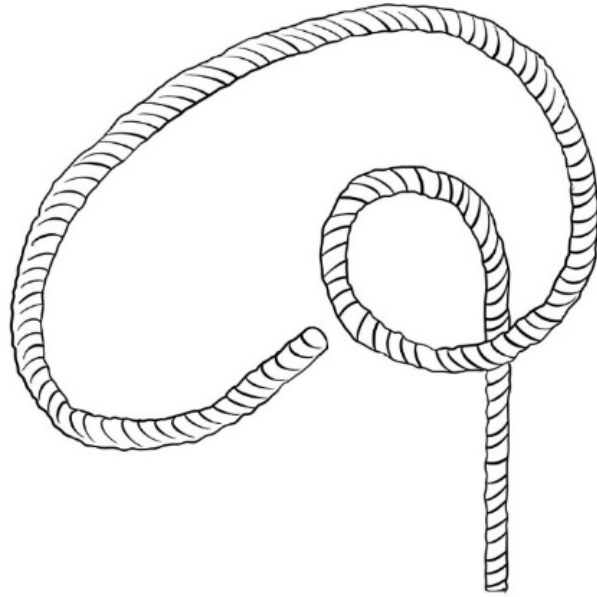


### Bowline

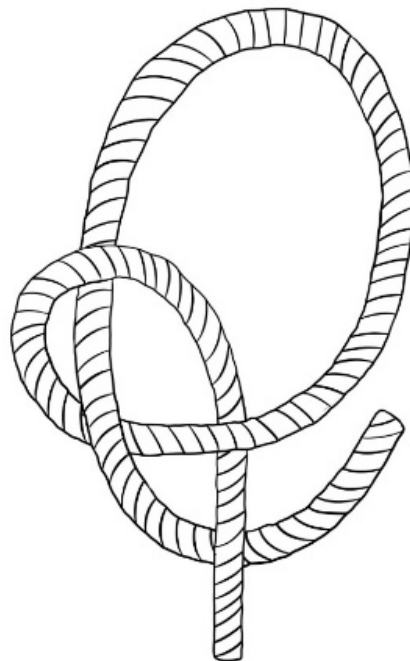
A bowline is a fixed loop that will neither tighten nor slip under strain. It is good to tie around things you want to secure/tether, e.g., a raft or a person.

Hold the rope in your right hand with the standing end at the rear.

Make an overhand loop so that the loop faces to the left.

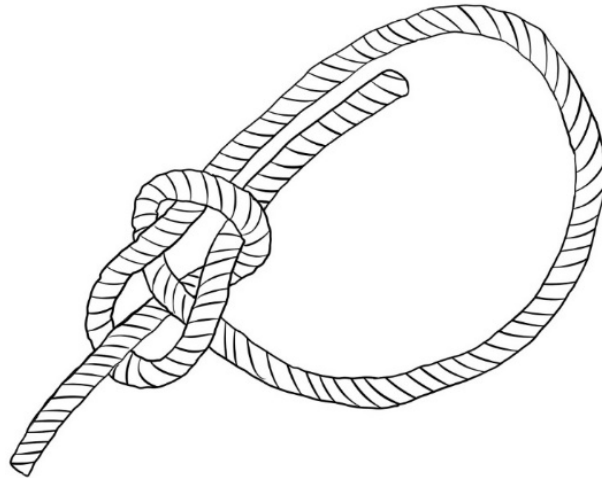


Pass the running end up through the loop you made and then around the back of standing end.



The running end then goes over the crossing point and back through the original loop.

To tighten the knot, pull the standing end and the doubled-up running end in opposite directions.



You can finish the bowline off with a stopper knot (e.g., overhand) tied against the side of the loop.



Once you can tie the bowline practice doing it around things. It changes the orientation so practice is needed.

## Butterfly Loop

The butterfly loop (a.k.a. alpine butterfly or lineman's loop) is useful for creating a fixed loop in the middle of a rope. It is secure, can be loaded safely in multiple directions, and remains relatively easy to untie even after a heavy load.

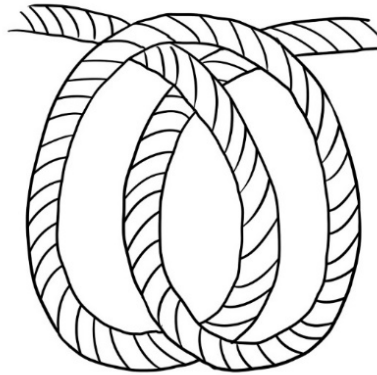
Amongst other things, the butterfly loop is a very good knot to use to shorten a rope or to exclude a damaged section. Doing so is preferred to cutting a rope since a re-joined rope has less strength.

Get a bight of the rope and twist it two times in the same direction so you have two crossing points and therefore two loops.

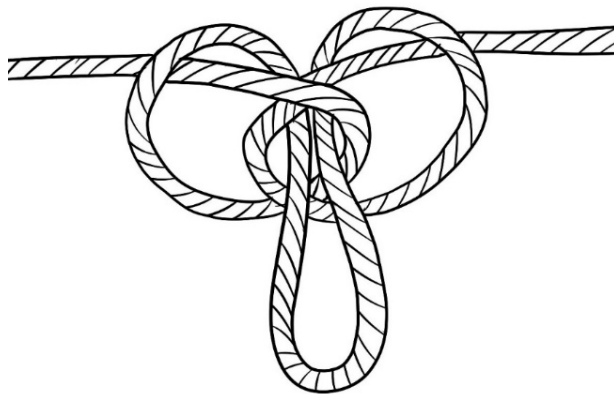


For ease of explanation, the loop furthest away from the ends of the rope will be loop one and the loop between the ends of the rope and loop one will be called loop two.

Grab the tip of the bight of loop one and bring it beyond the crossing point of loop two.



Next bring the tip of loop one up through loop two.

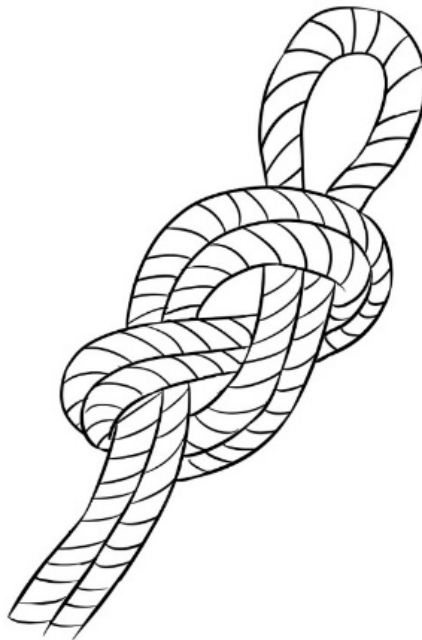


Pull all ends to tighten.



### **Figure 8 Loop**

Just like the overhand knot, the figure 8 can be turned into a fixed loop by making the knot on the bight.



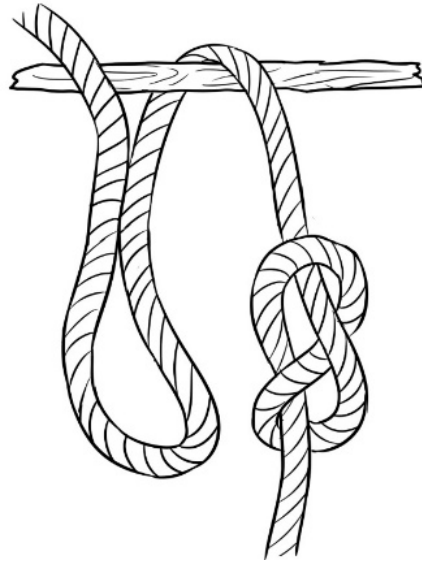
To tighten it pull on each loose end, i.e., on the loop and the running/standing ends.

Work the knot so it is neat with no cross over on the rope. This will keep the knot strong and easier to untie.

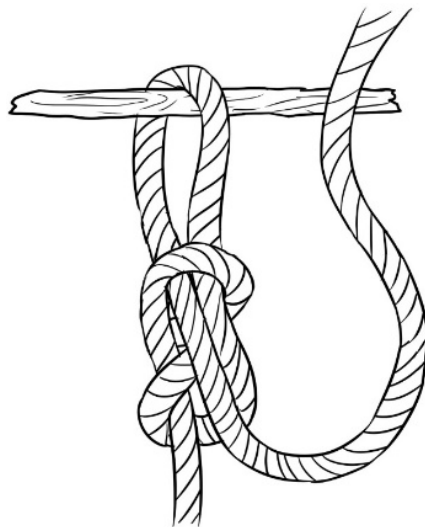
## Threaded Figure 8

This is a good way to tie onto a fixed loop. It is often used by climbers as it is considered more secure than the bowline.

Create a figure 8 in the rope. Be sure to leave a long running end.

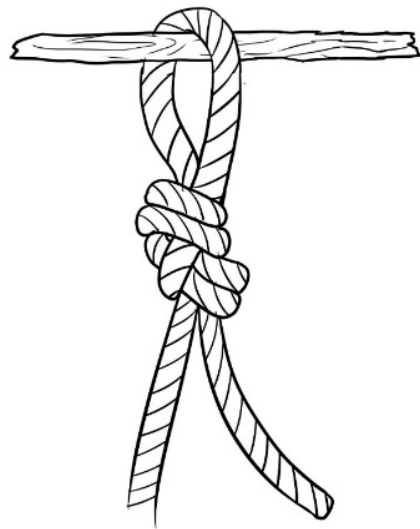


Pass the running end through/around whatever you want to tie onto and then use it to trace the path of the original figure 8.





Pull it tight in the same way as you did for the figure 8 loop.



## **HITCHES**

Hitches are useful to secure the rope to an object, e.g., a boat to the jetty or around a log you wish to drag.

### **Half Hitch**

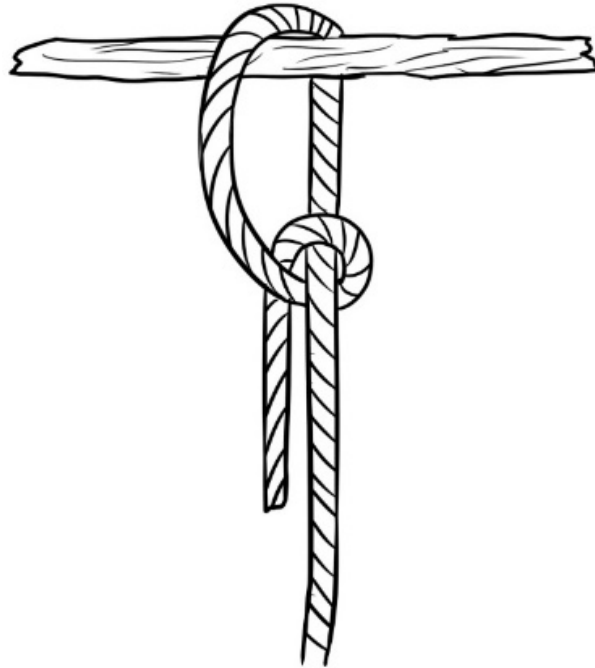
The half hitch is easy to tie and easy to untie even after considerable load. It is designed to take load on the standing end.

Due to its simplicity it is relatively easy to work loose. To prevent this the half hitch is usually used in conjunction with other knots. A common example is the round turn and two half hitches which uses three less secure knots to create one very secure knot that remains easy to tie/untie.

Some common uses for the half hitch on its own is as a backup knot or to use up any left-over rope so it is out-of-the-way.

To tie the half hitch, loop the rope around the object. Bring the running end behind and then back over the standing end. The running end then threads through the loop above the crossing point created.

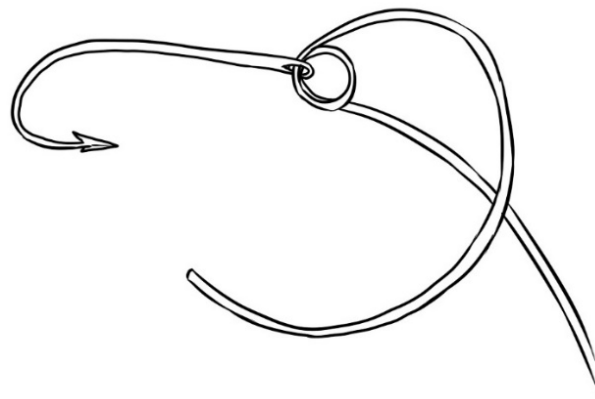
In this picture the half hitch is loose but in actual use it should be pulled tight and repeated (two half hitches) in order to create more security in the knot.



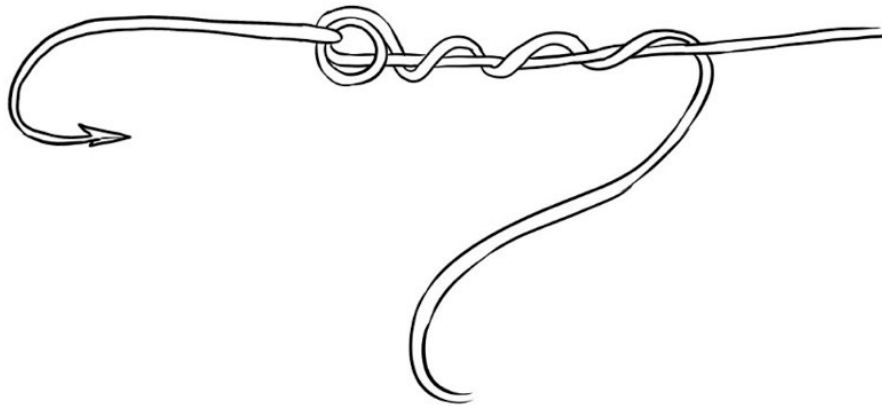
## **Clinch Knot**

The clinch knot is most commonly used as a fishing knot, i.e., to tie a hook (or lure, swivel, etc.) to a line. It is best used with lighter lines.

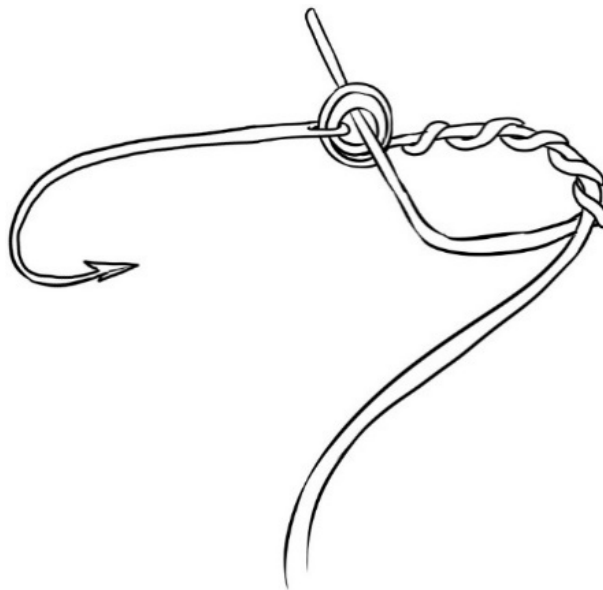
Thread the running end of the line through the eye of the hook and then do it again in the same direction to create a round turn.



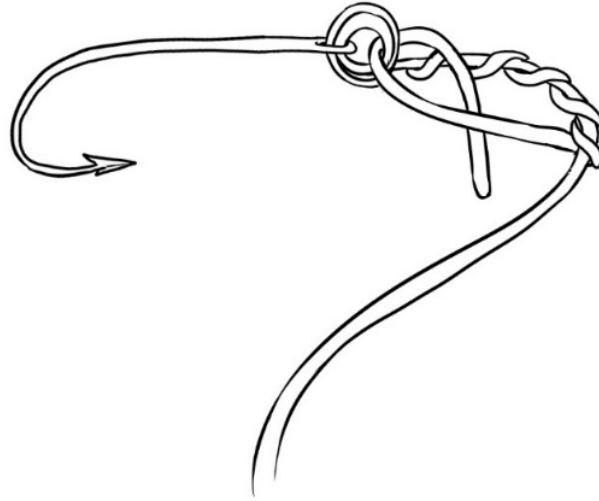
Wrap the running end around the standing part at least four times, preferably more. Holding the loops under your fingers as you do the wraps may make it easier.



Thread the running end through the loops created by the round turn. This creates a second, bigger loop.



Thread the running end down through this second loop.



Tighten the knot. The wraps will change position and squash up against the eye of the hook. Trim the end of the running end if needed.

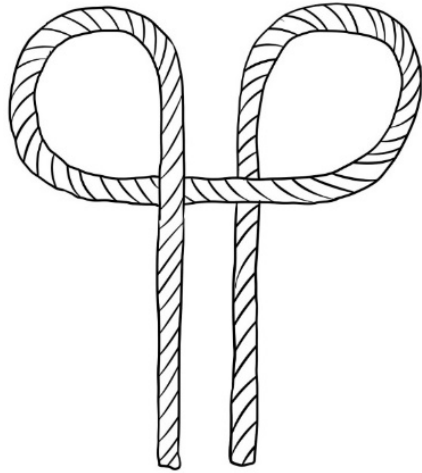
## **Clove Hitch**

Clove hitches are a useful base for many other knots (such as lashing) and are also good in their own right for binding.

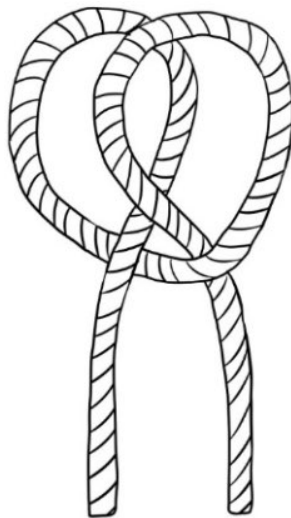
### **Clove Hitch Method One**

When the rope is not under strain as you are tying it and you are able to slip it over your object you can use this quick method.

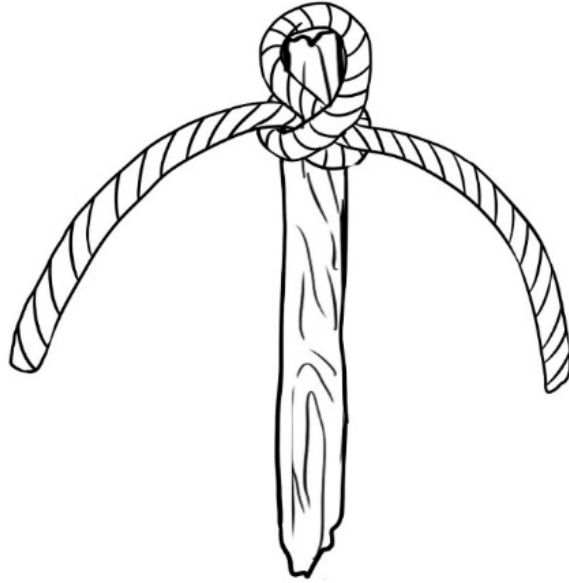
Make two loops in the rope which face opposite directions, as pictured below.



Put the right loop over the left one.

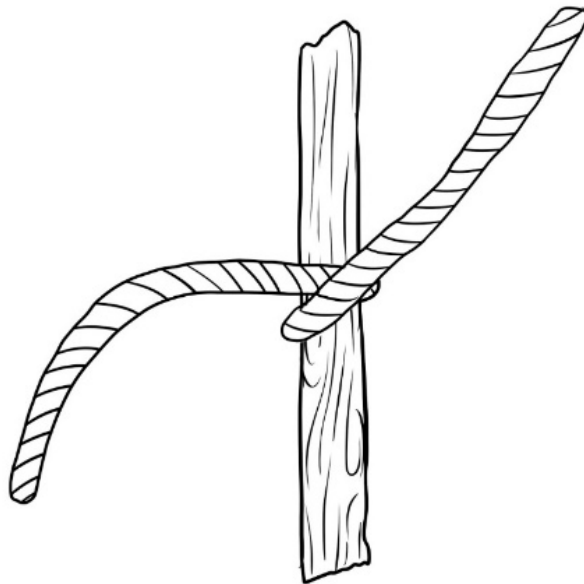


Put both loops over the object and pull the running and standing ends apart to tighten the knot.

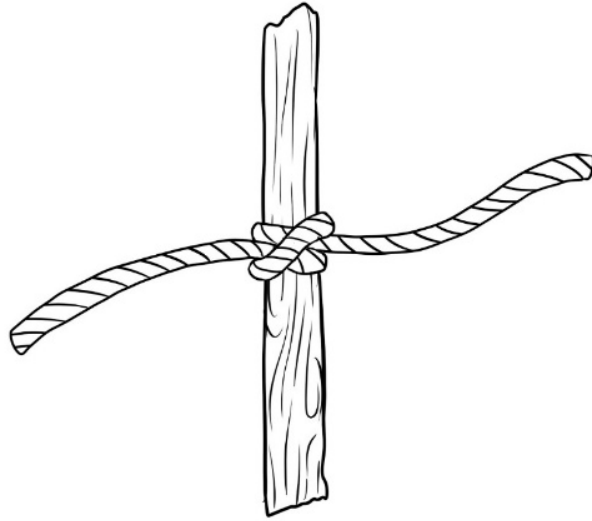


### **Clove Hitch Method 2**

Wrap the running end of the rope around the object you wish to tie onto so that the running end crosses over the standing end.



Wrap the running end around a second time and then pass it underneath itself.

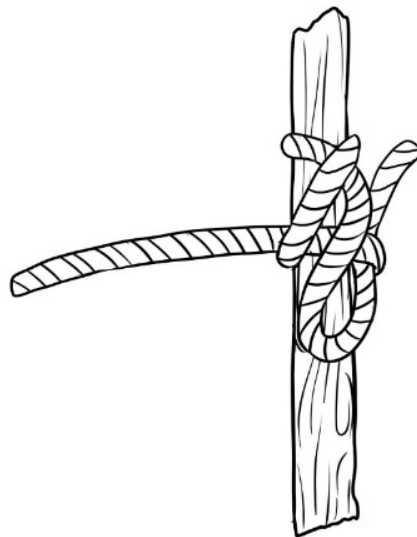


Pull it tight as before.

### **Constrictor Knot**

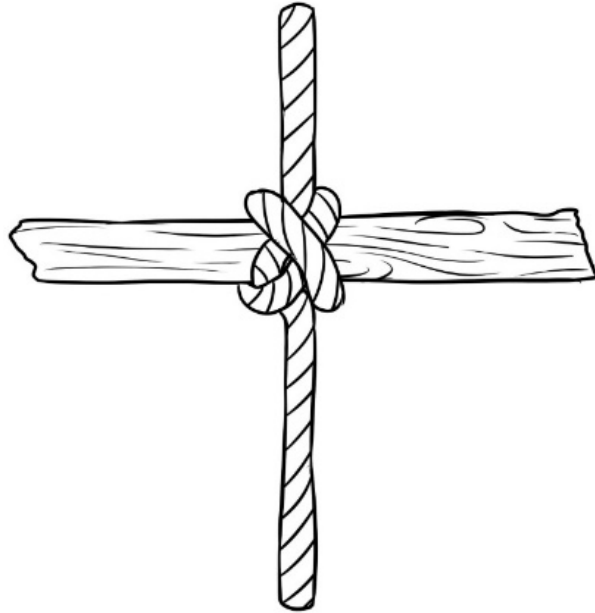
By making a small adjustment in the way you tie the clove hitch you can create the constrictor knot.

Tie the clove hitch as in method two but this time pass the running end underneath the first turn before pulling it tight.





The constrictor knot is good when working with thin rope. It is considered more secure than the clove hitch but is harder to untie.

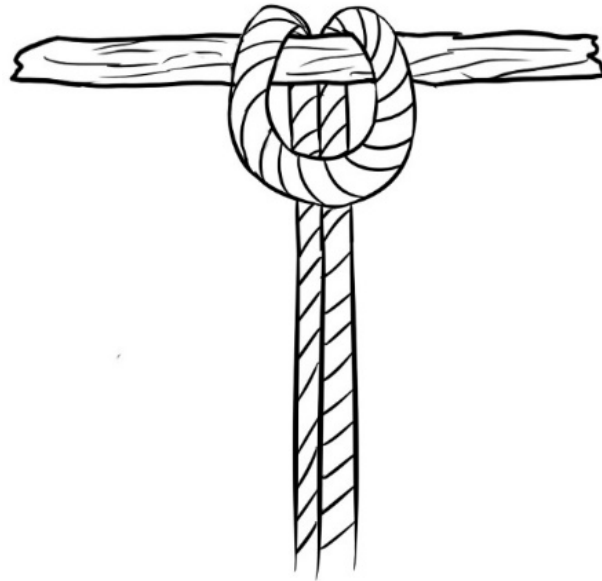


### **Cow Hitch**

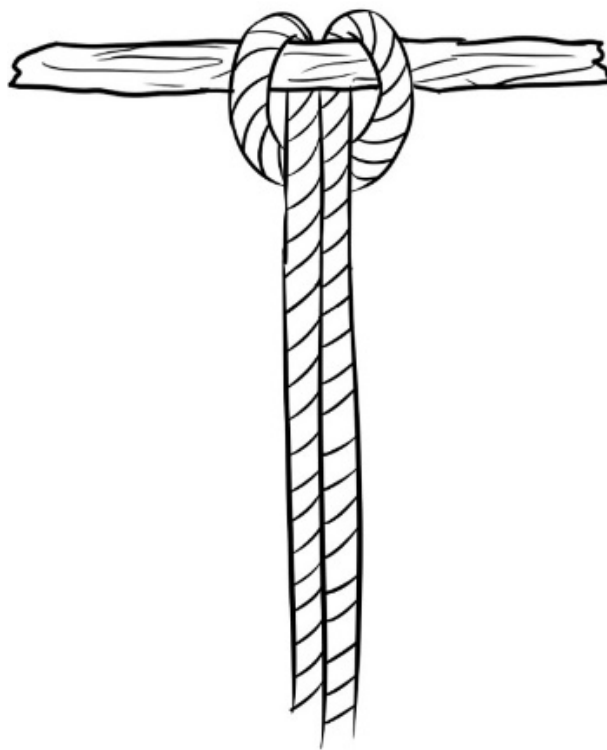
The cow hitch (a.k.a. lark's head) is not a very secure knot but it is quick to tie and useful when making nets and other rope constructions.

To ensure it does not work loose equal strain must be applied to both ends.

Create a bight in the rope by doubling it up. Pass this bight around the object you want to tie onto.



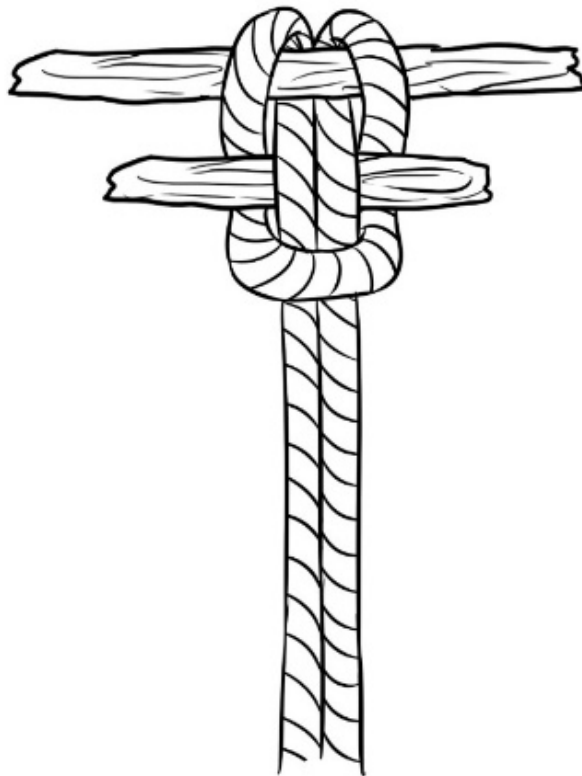
Pull both ends of the rope through the bight you created. Pull them both tight.



**Cows Hitch With Toggle**

This variation is useful when the two ends are secured and only the bight can be passed around the object.

Pass the bight around the object and then put a toggle between the bight and the standing ends to secure it in place.



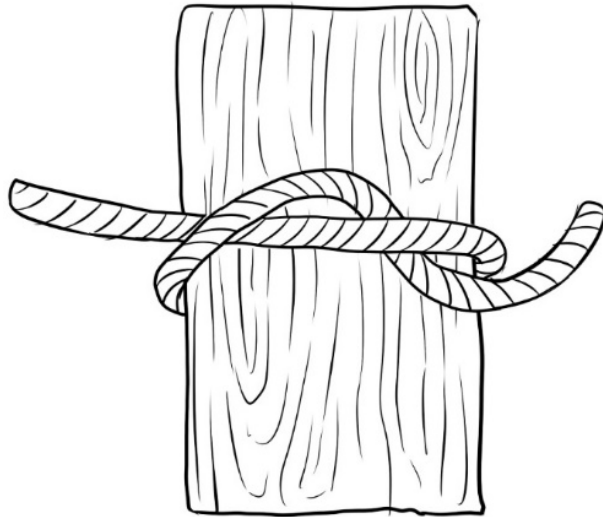
## **Reef Knot**

A reef knot (a.k.a. square knot) is a good binding knot which is easy to tie and untie.

Many people may use the reef knot to join two ropes together. This is not advised, especially if the rope will be bearing load. There are far better joining knots which are specifically designed for the job.

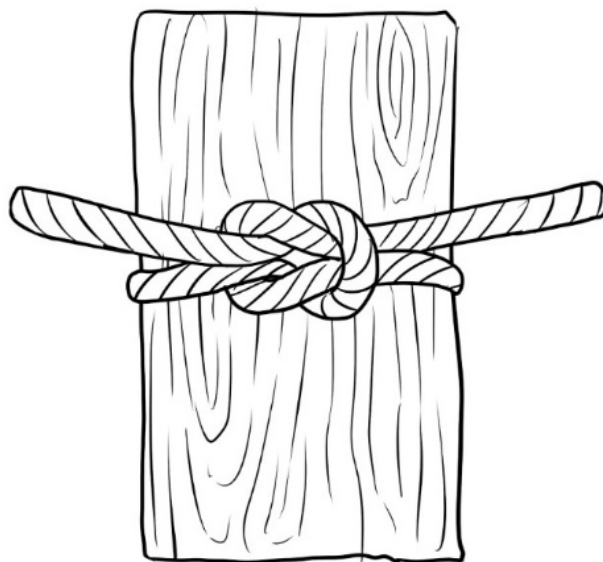
To tie a reef knot put the rope around the object you want to bind.

Take the left end and pass it over the right from the bottom and then tuck it under the right end.



Now take this new right end and cross it over the left end and then tuck it under.

Pull the left strands and the right strands apart to tighten the knot.

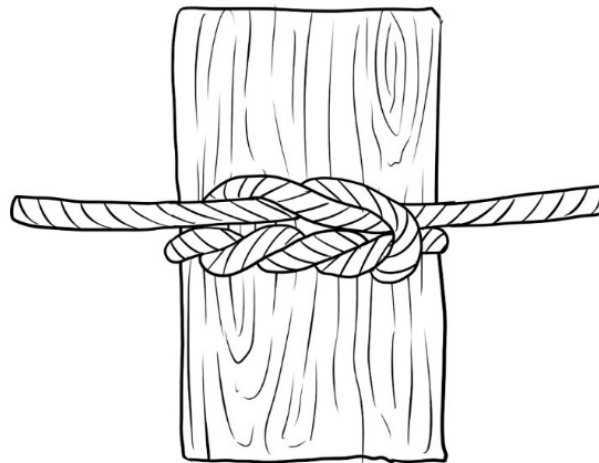


An easy way to remember this is with the rhyme “left over right and under, right over left and under.”

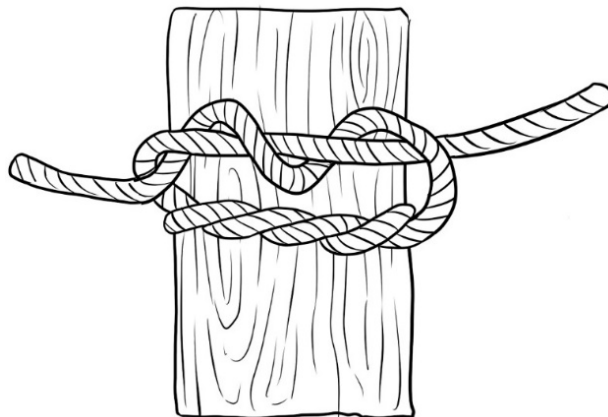
## **Surgeon’s Knot**

A variation of the reef knot is the surgeon’s knot which is more secure.

To tie a surgeon’s knot, make an extra turn when tying the “left over right” part. This keeps the knot in place while you tie the rest of the knot.



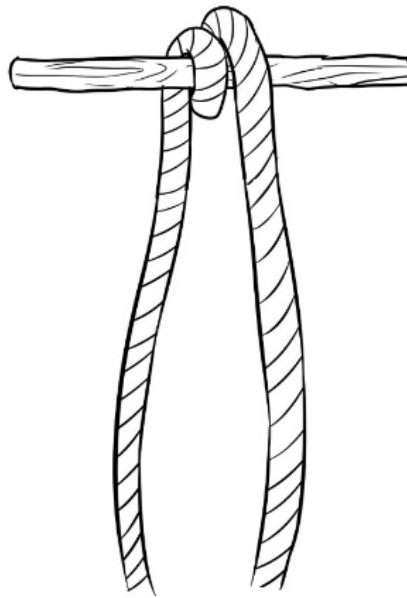
You could also make an extra turn in the “right over left” part to make it even more secure.



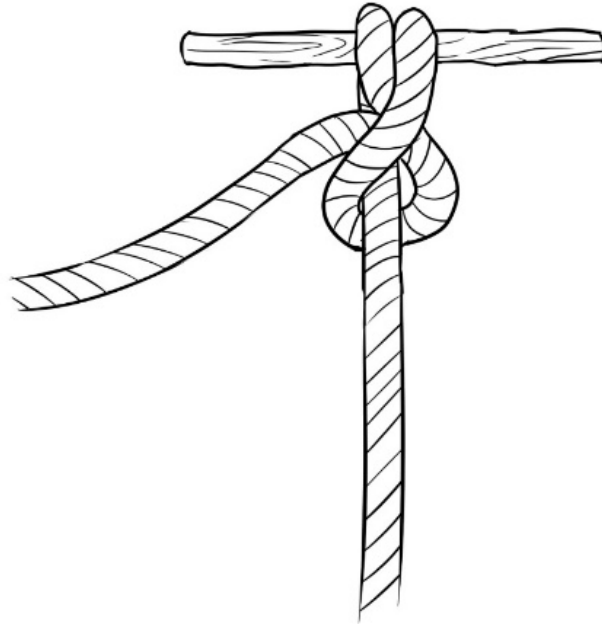
## Round Turn and Two Half Hitches

This knot is fast to tie and very secure. It is also fairly easy to untie even when placed under heavy strain.

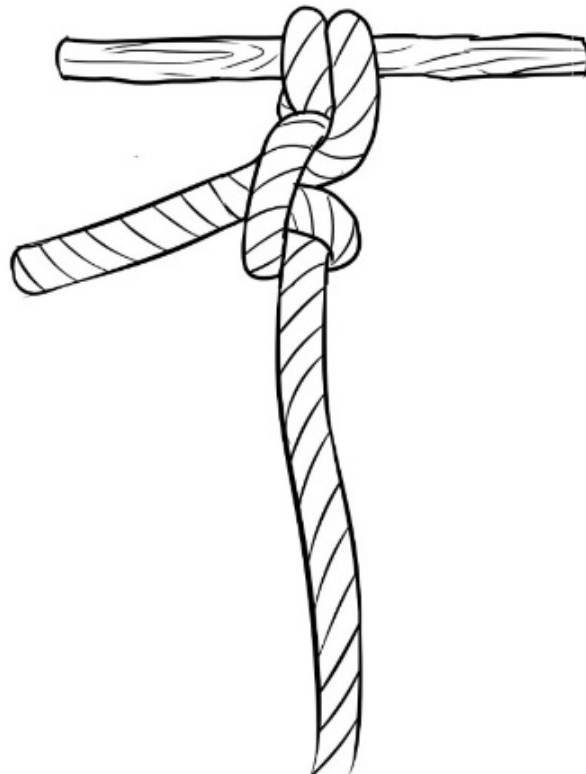
To create the round turn, loop the running end of the rope around your object so the rope completely encloses it.



Tie a half hitch by bringing the running end behind the standing end. Make a turn around the standing end and then thread it through the gap you made between the running and standing ends.



Create a second half hitch in the same way ensuring it is underneath the first half hitch. Pull both ends to tighten.

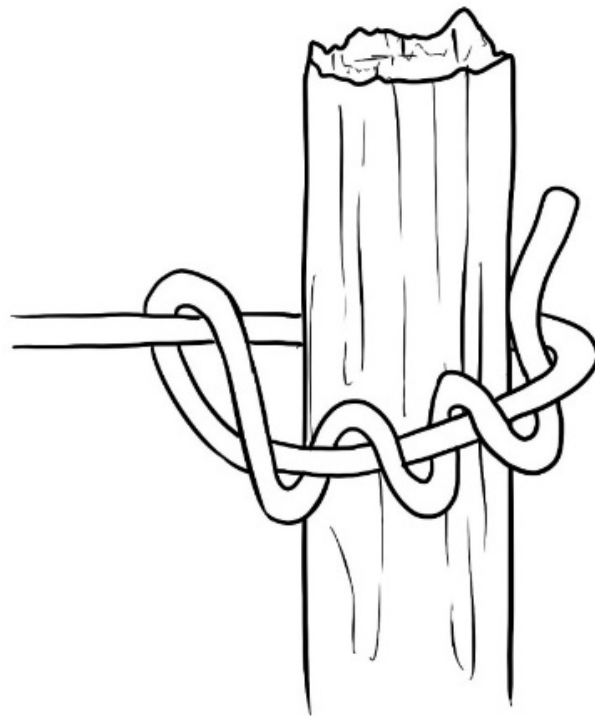


## Timber Hitch

The timber hitch is useful for securing any cylindrical object, e.g., a wooden log. It is secure when tension is applied but remains easy to untie even after a heavy load.

It is great for pulling large objects and is also useful for attaching the string on a longbow as well as on some instruments, e.g., guitar.

Loop the rope around the object. Bring the running end under and then back over the standing end. Wrap the running end around itself (between the rope and the object) three or four times.



Pull it tight.

When using the timber hitch to haul/hoist something you can add some half hitches towards the hauling end. This will keep the load straight while you pull it.





## **Trucker's Hitch Variation**

The trucker's hitch is a simple tension system which is great to use to secure a load on a vehicle, hold down a roof, make a tent guy line super tight, etc.

There are a few ways to do a trucker's hitch. This method uses a combination knots that have already appeared in this book.

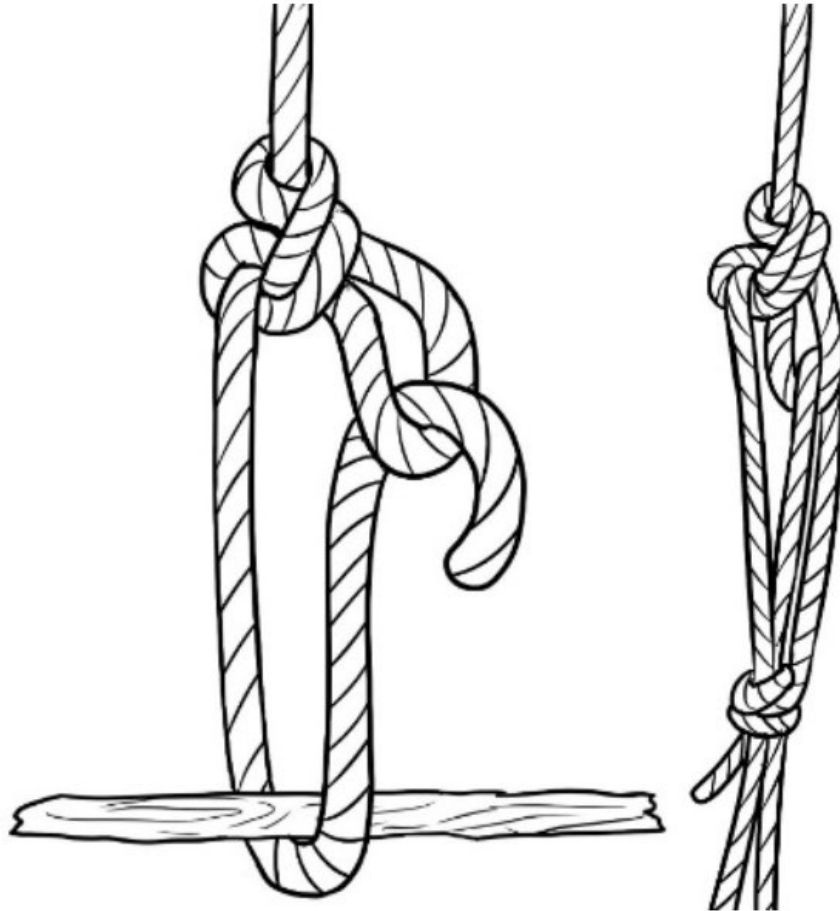
Secure one end of the rope (clove hitch, round turn and two half hitches, bow line, etc.) to whatever you are securing the load to.

Wrap the running end over the object you wish to secure and then back down.

About two thirds up this line create a fixed loop, e.g., a butterfly loop.

Pass the running end under a secure point and then back up through the fixed loop you made.

Pull down as much as possible to tighten the load down and then tie the rope off on itself with a couple of half hitches.



## BENDS

Bends are used to join two or more lengths of rope together. This can be useful to repair broken rope or for creating a longer length from two shorter ones.

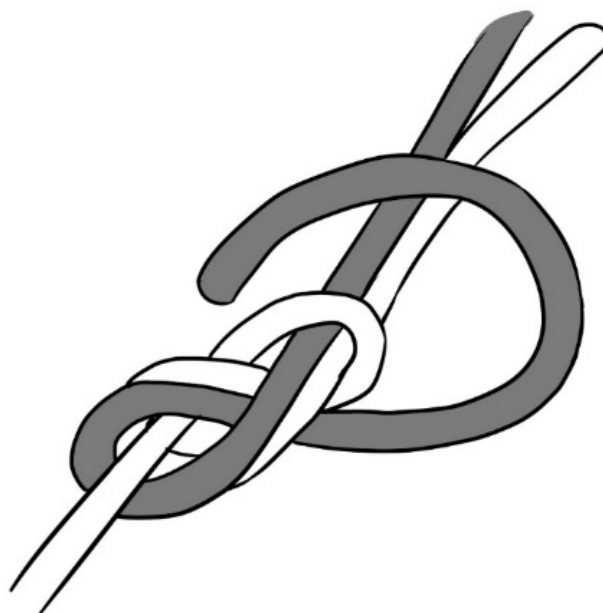
### Figure 8 Bend

The figure 8 bend is a fairly easy and secure way to join two ropes together. It is also good for making a prusik loop of rope which can be used for ascending (see the Survival Roping Techniques bonus chapter).

It is best done with ropes of equal width especially if it will hold a critical load.

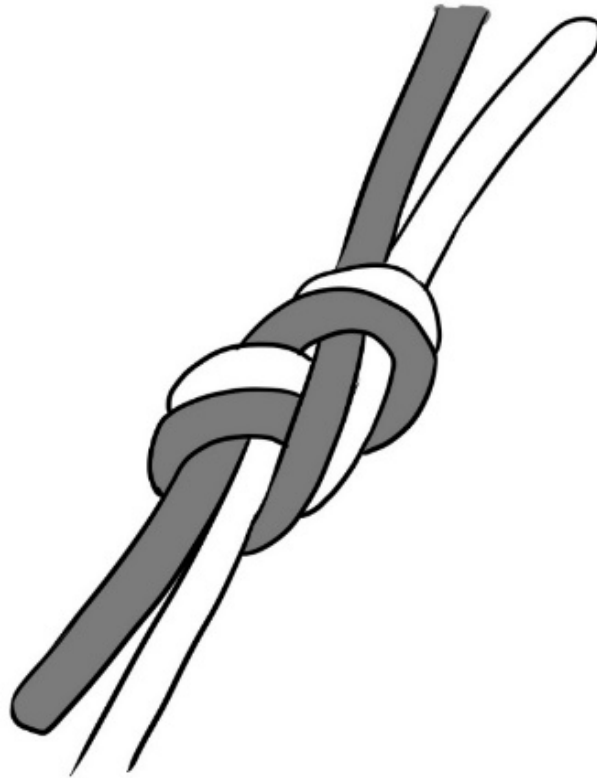
Tie a loose figure 8 in the end of one of the ropes.

With the other rope follow the path of the original figure 8 (in a similar fashion to the threaded figure 8).



Ensure that there is no cross-over in the rope and that the ends face in opposite direction.

Pull on all ends to tighten.

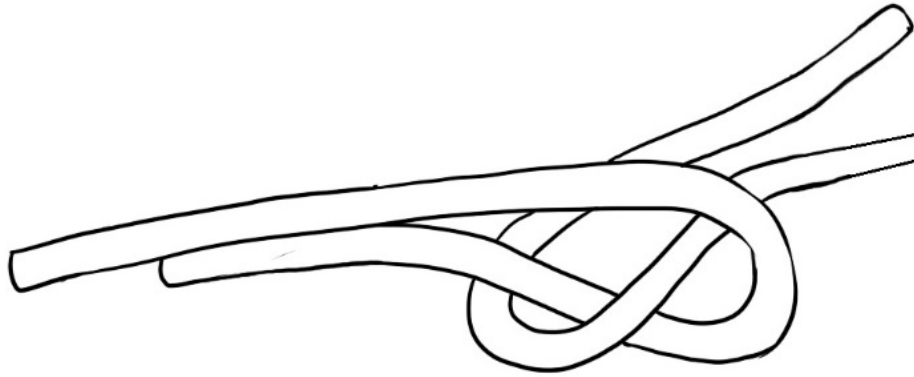


### **Sheet Bend**

The sheet bend is a fast way to join two ropes together.

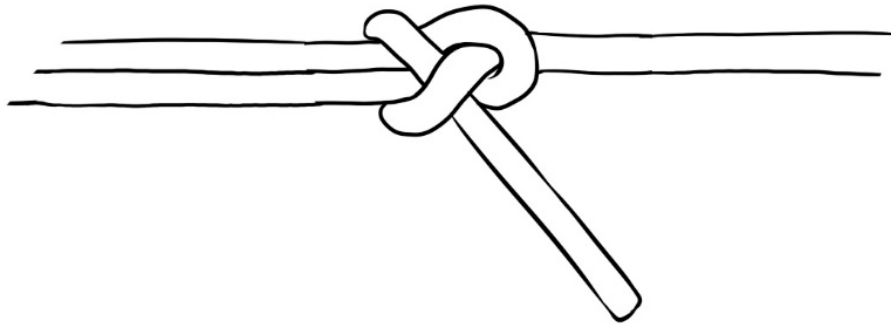
Create a bight in one of the ropes.

Pass the running end of the second rope through the bight.



It then loops over the top of the first rope and under itself.

Tighten by pulling both ends of the first rope away from the standing end of the second rope.

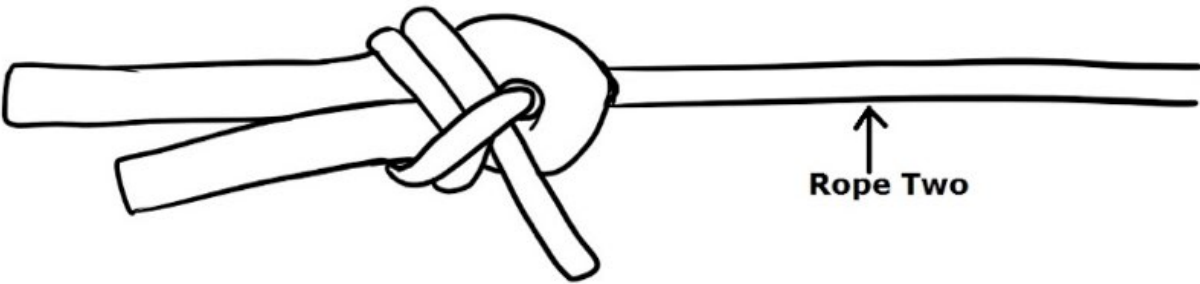


### **Double Sheet Bend**

The double sheet bend can be used when you want more security such as if strain will be “on and off”, when the rope is wet, and/or if the ropes are of a different thickness.

Making a double sheet bend is the same as a normal sheet bend except that you loop the second rope around the first one a second time before tucking it under itself.

When using ropes of a different thickness have the thinner one as rope two.



## LASHING

Lashing is used to join objects together. It becomes very useful during construction.

For all lashing you will need quite a long running end.

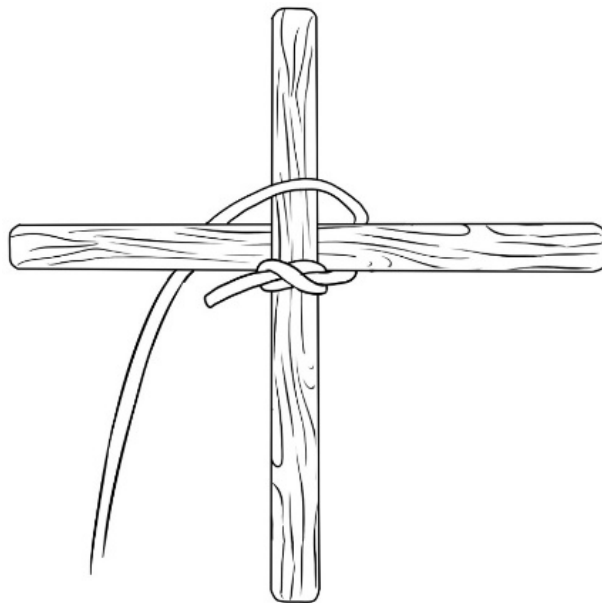
### Square Lashing

Square lashing is used to hold poles together at a 90° angle.

Place two poles together in a cross so that the vertical one is on top of the horizontal one.

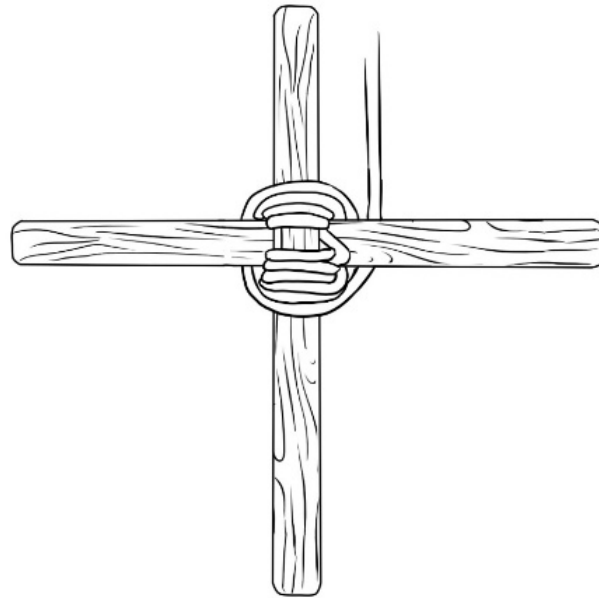
On the vertical pole, below the horizontal one, tie a clove hitch.

Pass the running end under the horizontal pole (on the right side of the vertical pole), then over the vertical one (on the upper side of the horizontal pole).



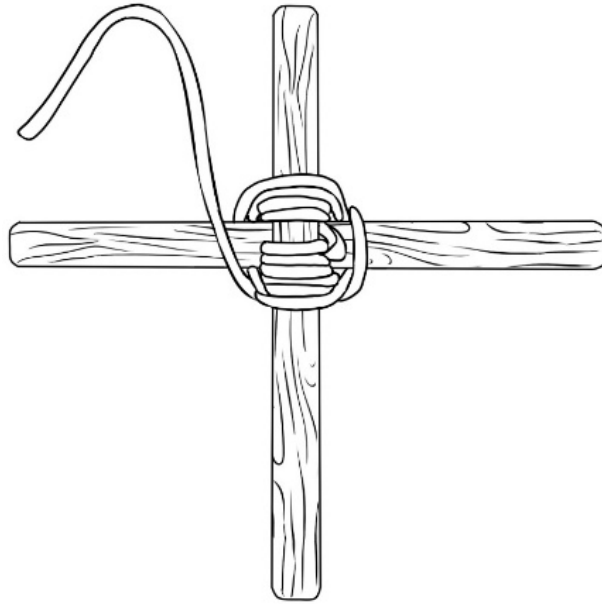
Pass the running end under the horizontal pole on the left side and pull it tight so that the clove hitch slips to the right side of the vertical pole.

Continue to pass the rope over the verticals and then under the horizontals in this anti-clockwise fashion. Pull each pass tight as you go. Make three full rotations.



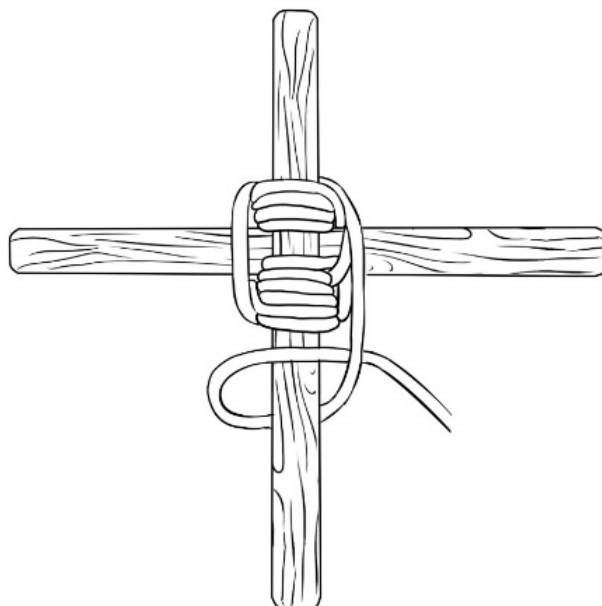
The long end of the rope should finish having come underneath the right side of the horizontal pole. Bring it back over the front of the horizontal pole and then behind the lower end of the vertical pole. This is called frapping. Pull it tight.





Go over the left side of the horizontal and then under the top side of the vertical and pull it tight. This is one frapping rotation. Do a total of three frapping rotations and then tie a clove hitch on the lower side of the vertical pole.

When doing the clove hitch make sure you pull the first half hitch tight before doing the second.



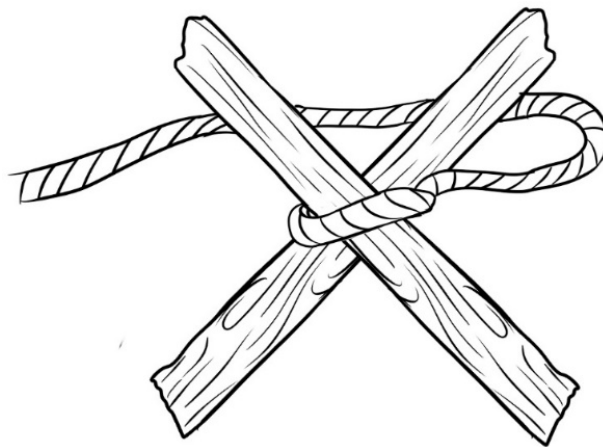
Trim any excess away and/or tuck it under the lashing.

## **Diagonal Lashing**

Diagonal lashing can be used when the poles do not cross at right angles. It is also useful for when the poles need to be pulled toward each-other for tying.

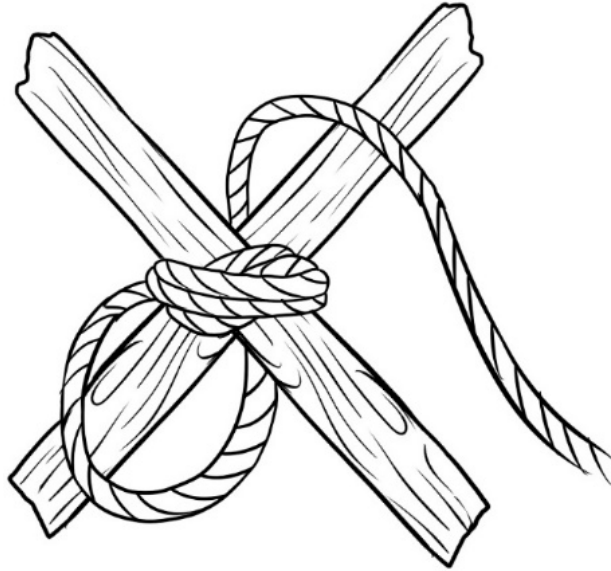
Cross two poles on top of each-other and tie a surgeon's knot around them horizontally so that the running end is to the right.

Pass the running end back behind the poles so it is on the left side.



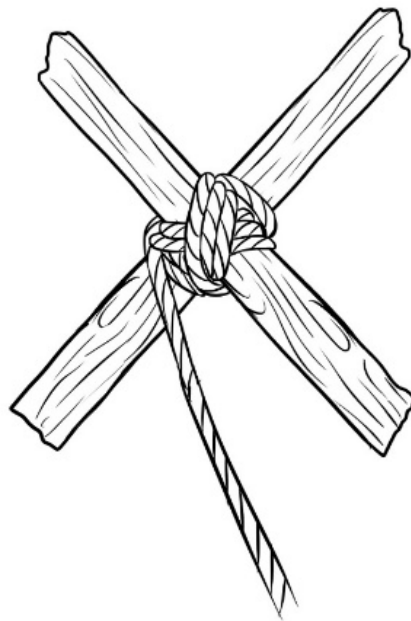
Bring the running end horizontally over and under the poles. Pull it tight. Do this three times.

The running end finishes on the left. Go over the bottom left pole and then under the cross so it comes over the top vertically. Pull it tight.

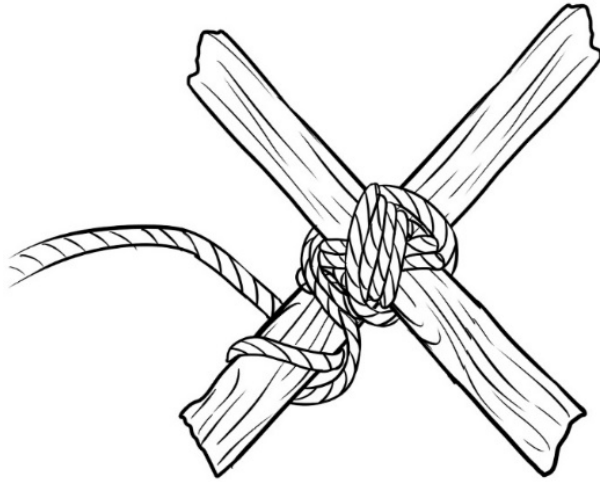


Do three vertical turns and pull tight after each one. Your running end finishes running vertically down.

Do some frapping turns by passing the rope under then over each pole in an anti-clockwise fashion. Keep it tight. Do three full rotations.



Finish it off with a clove hitch and trim if needed.

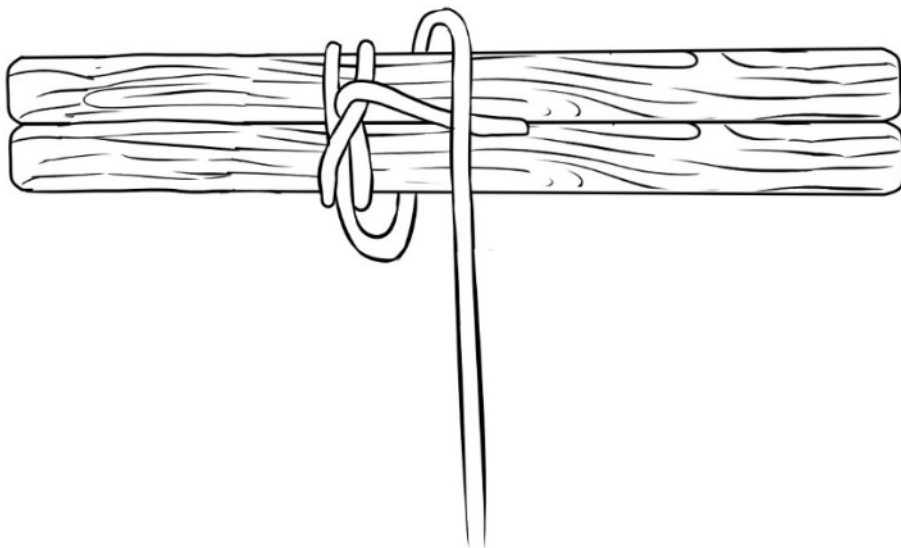


## **Sheer Lashing**

A sheer lashing is good for joining poles together in a parallel fashion.

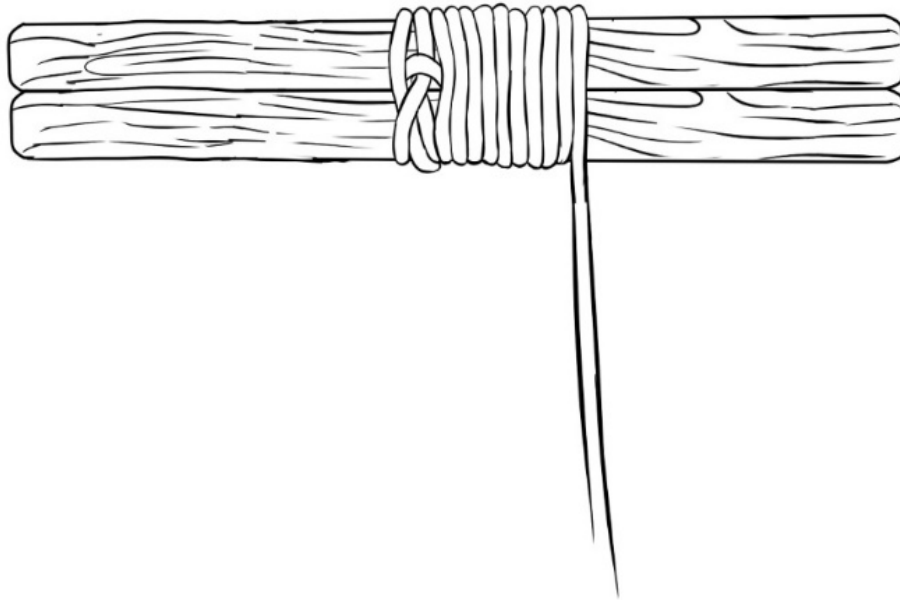
Put two poles together side by side so they lay horizontal. Tie one clove hitch around both the poles to the left of where you intend to make the rest of the lashing.

Lay the short end horizontally between the two poles to the right of your clove hitch so you will lash over them.

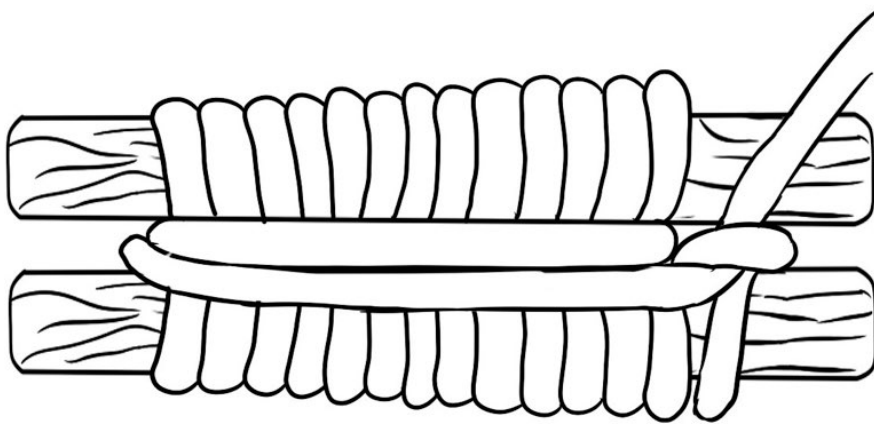


Wrap the running end around the two poles pulling it tight after each turn.

Do at least as many turns so that the lashing is the same length as the width of the two poles.



Do frapping turns by passing the rope between the two poles at the right side and then coming back up between them on the left. This should be hard to do since you pulled the lashing turns tightly.



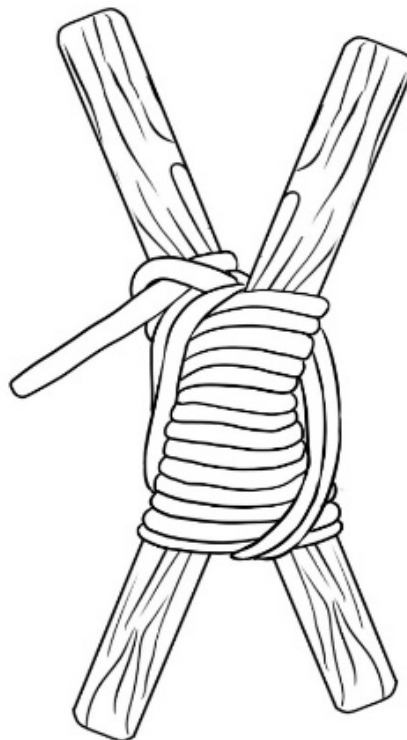
Do two frapping turns and finish it with a clove hitch on one end around one of the poles.

***Note:** Wedges placed in between the two poles can be done instead of frapping.*

### **A-Frame Lashing**

An A-Frame lashing is the same as a sheer lashing but make the lashing and frapping turns a bit loose.

Pull the legs apart to make the A-Frame.



# **SURVIVAL ROPING TECHNIQUES**

The methods described in these bonus chapters make use of some of the knots described in the main part of this book. These are techniques which you may find useful when in a survival situation.

***Warning:** The following techniques are reserved for “no-other-option” survival situations. If you choose to practice them ensure you take all the necessary precautions and care to ensure your safety.*

The following information is from the book **Emergency Roping and Bouldering** by Sam Fury.

[www.SurvivalFitnessPlan.com/Emergency-Roping](http://www.SurvivalFitnessPlan.com/Emergency-Roping)

## DESCENDING

This technique to rappelling with only a rope is known as the Dulfersitz method.

For this to work you need a rope at least twice the length of the distance you wish to descend and that is strong enough to hold your weight.

Find the middle of the rope and wrap it around a solid anchor. Ensure it is not rubbing against any sharp edges and test its stability with all your weight. Jerk on it to make sure.

Pass both ends of the rope between your legs from front to back and then to the left of your body, over your right shoulder and down your back.



For comfort (and if you have the resources) you can put some padding around your shoulders and groin.



Hold the rope in front with your left hand and at the back with your right.

Plant your feet firmly against the slope about 45cm apart and lean back so that the rope supports your weight. Do not try to hold yourself up with your hands.

Step slowly downwards while lowering your hands one at a time.

Go slow!

## ASCENDING

Prusiking up a rope is a self-rescue method used by climbers. It is a relatively safe way to ascend a rope in the case that there is no easy way to climb out.

It can also be used in reverse to descend.

Climbers will have proper equipment such as harnesses and carabineers but chances are you will not. Still, prusiking up a rope without a harness is safer than trying to ascend without using a prusik system. Also, improvised harnesses, or even just a short rope tied around the waist using a bowline, can (and should) be made if you have enough resources to do so.

The first thing you must do is create two closed loops. These will be your prusik loops. Many types of knots can be used to create a closed loop but most of them are not safe to use when prusiking.

Climbers often use a double fisherman's knot but a faster way is to use a figure 8 bend. The figure 8 bend is also easier to tie than a double fisherman's and easier to untie, even after your weight has been on it. Refer to the Bends chapter for instructions on how to tie a figure 8 bend.

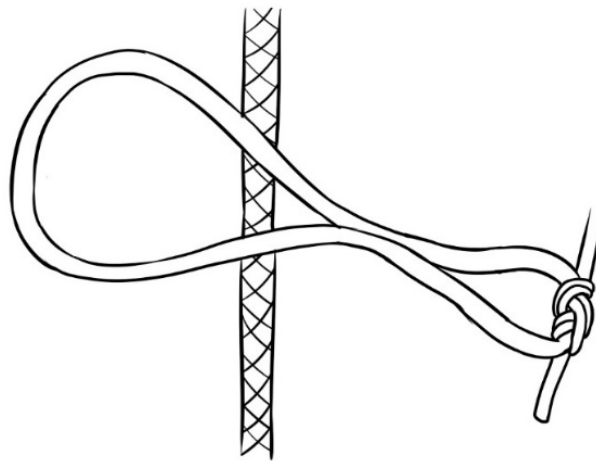
Your two prusik loops should be made from rope with a thickness of about half the diameter of the rope you are going to ascend or descend. Ideally, one rope will be about as long as you are high plus about 20cm and the second rope will be twice your height.

The rope you use for your prusik loops must strong enough to hold you if you fall. This doesn't just mean it can hold your weight, it has to be strong enough to handle the shock load.

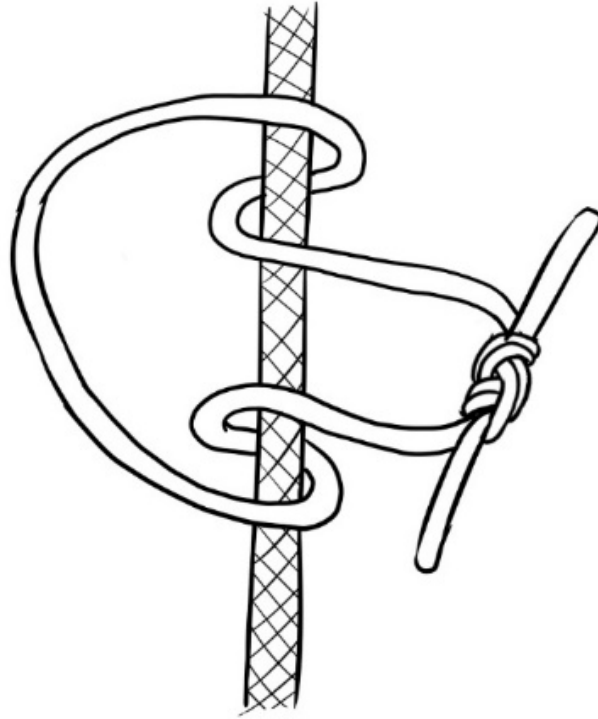
## Prusik Hitch

Once you have made your prusik loops you will use the prusik hitch to attach them to the rope you want to climb (the main line).

Put the loop across your main line with the joining knot (figure 8 bend) facing the right.



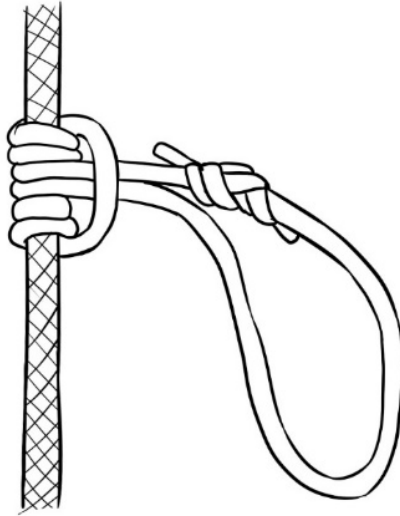
With the knotted side, wrap your prusik loop around the main line.



Do it at least twice. The more wraps you make the more friction you will have.

Ease the loops tight. As you do so ensure all the lines are neat next to each other. Do not let them overlap/cross each-other.

Also, as you tighten it, do your best to position the fig 8 bend close to the main line.



### **Ascending the Main Line Using Prusik Loops**

Tie both prusik loops onto the main line using prusik hitches. Tie the smaller prusik loop above the larger one.

A prusik hitch works because you can slide it up but when downward tension is applied it does not slip. Test it well with all your weight before using it to climb. If needed add extra turns.

Attach the top prusik loop to your harness.

***Note:** Rope on rope friction can cut rope. If you have a carabiner, use it. If not, just be extra careful there is not too much friction between your harness and the prusik loop.*

Slide the top prusik loop up as high as you can reach.

Slide the bottom prusik loop to about head height, or as high as possible so that you can still put your foot in it.

Put your foot in the loop and stand up. The joining knot of the prusik loop is the weak part so keep off it.

Slide the top prusik loop as high as possible and then put your weight on it by sitting in your harness.

Now slide your bottom prusik loop up as high as possible and put your foot in it. Stand up and slide the top prusik loop up again.

Repeat this motion.

To descend you just reverse the motions.



## **Ascending Without a Harness**

It is possible to ascend using prusik loops with no harness but doing so is extremely risky and considerably more energy will be used. Sufficient strength is needed.

Make your loops smaller than usual and have at least two of them, preferably four.

Assuming you are using four prusik loops, the top two are for your hands and the bottom two are for your feet. You want them all to be fairly snug so you can slide them up with minimal movement.

Place your feet in the two bottom prusik loops and hold onto the top ones with your hands.

Slide your hands up with the top prusik loops as high as you can.

Pull yourself up and use your legs to slide the bottom prusik loops up as high as you can.

Stand up whilst sliding the top prusik loops up again.

Repeat this process.

## **Brake and Squat**

If you do not have any rope to use as prusik loops, you can use the Brake and Squat method to climb the rope.

Let the rope fall to the outside of one of your legs.

Step on the rope with the foot closest to the rope.

Put your other foot underneath the rope.

You are now in the basic position.

Grab the rope as high as possible and hang of it.

Bring your feet up as high as possible (pull yourself up and bring your knees to your chest) and place them in the basic position.

The basic position locks the rope in so you can stand (and rest if needed).

Reach up as high as you can again and repeat the process.



## **Ladder of Knots**

A series of overhand knots tied at intervals along a smooth rope will make climbing much easier.

## **Rope Ladder**



One way to make a rope ladder is to tie as many fixed loops (butterfly loops work well) in a rope as you need hand and foot holds.

Another way is by using two ropes (or one rope doubled up).

Tie fixed loops opposite each other along the ropes.

As you do so, put sticks (the rungs of the ladder) in the loops and ease the knot tight around them to hold them in place. Allow the rung ends to protrude a bit out the sides of the knots so they will not slip out.

## IMPROVISED HARNESSES

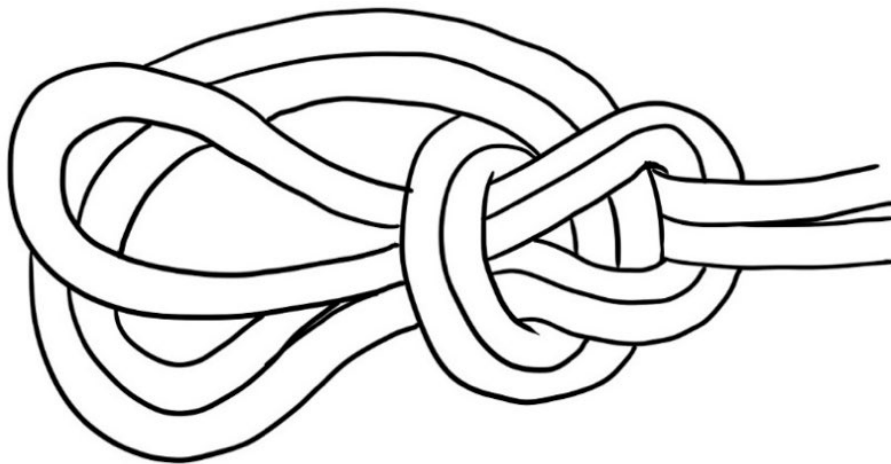
Improvised rope harnesses may not be that comfortable but they are very useful to know.

### Triple Bowline

A triple bowline is basically a bowline made with a doubled-up line.

It produces three loops which can be used (among other things) as a sit sling or a lifting harness, with one loop around each thigh and the other around the chest.

Tie it in the exact same way as a bowline using the “middle” of the rope, i.e., do not use the ends. The running end must protrude out long enough to create the third loop.

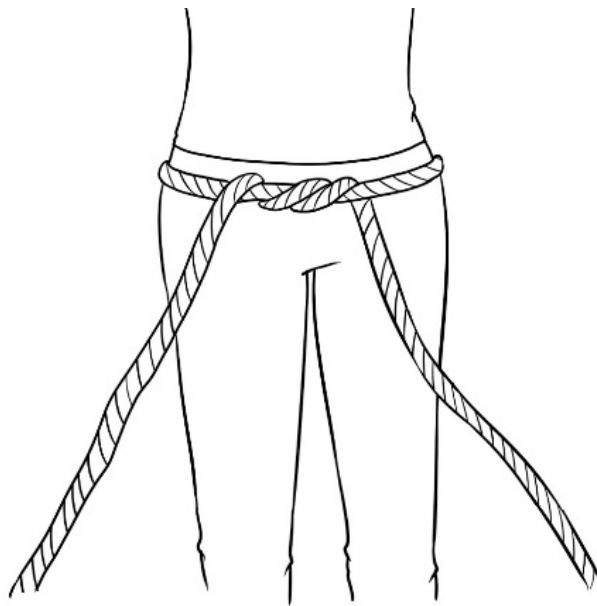


When using this to haul people be careful of the pressure the rope may create on the chest. A foot loop can be made to release the pressure.

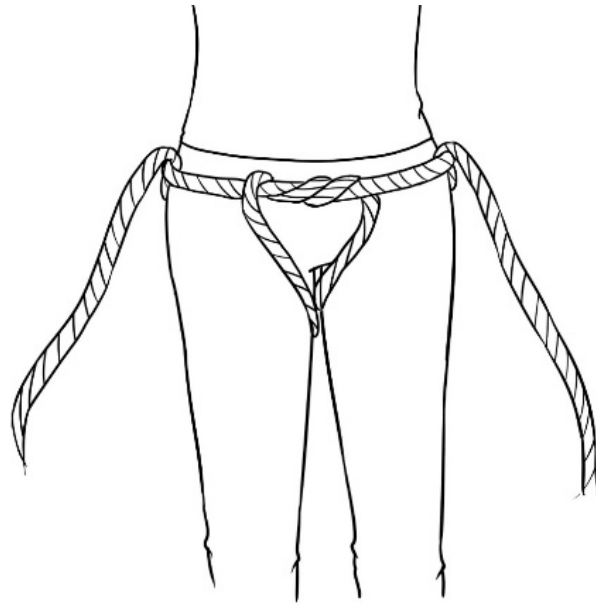
## Swiss Seat

This is an improvised harness that is good enough to use when doing things such as using prusik loops for ascension, assuming you do not have a commercial harness.

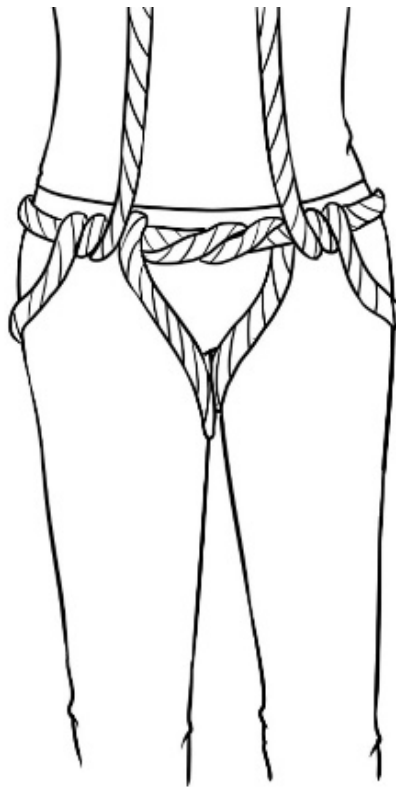
Find the center of the rope. Loop it around your waist and tie the first half of a surgeon's knot at your front.



Pass the ends between your legs and then tuck them up through the wrap you made around your waist, at either side of your waist respectively.

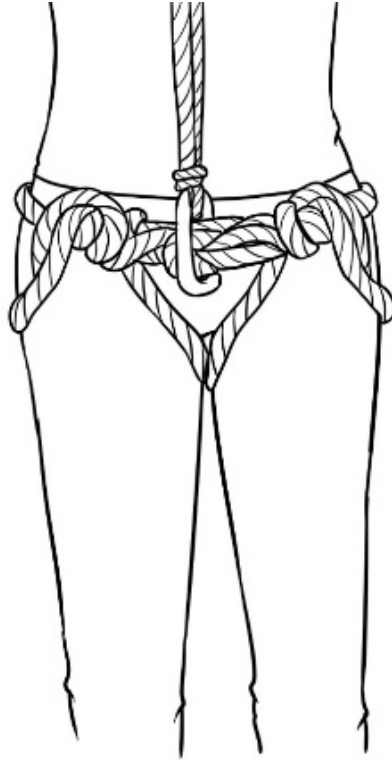


Pull down on the ends as you do a few squats. This will tighten it as well as check for comfort. Next, do a full wrap around your “belt” with each end of the rope.



Tie the ends together using a reef knot. Do it off center.

Make half hitches with the left-over rope that goes around both “belts”.



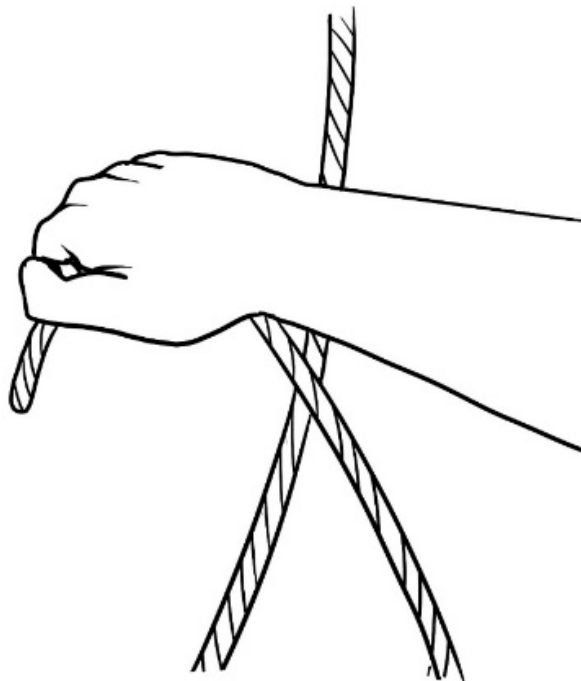
## SELF-RESCUE BOWLINE

The self-rescue bowline is good to learn in case you find yourself in a “man-overboard” situation or something similar. It is tying a bowline around your waist with only one hand.

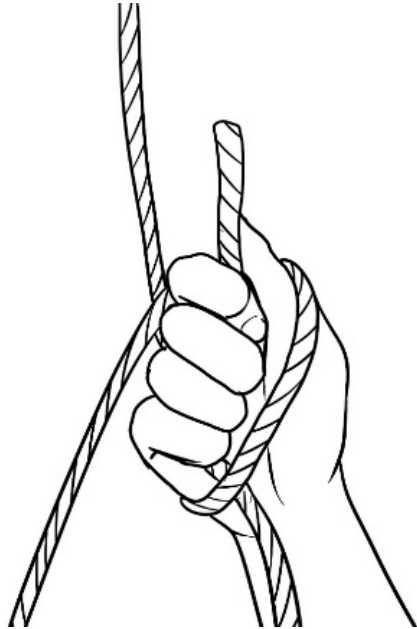
Wrap the rope around your waist so that both the standing and running ends are to your front with your body (waist) between them. In this demonstration the running end is on your right.

Hold the running end in your right hand allowing at least 15cm of rope beyond your hand.

Without letting go of the running end bring it over the standing part to make a crossing point.



Bring it up through the gap created between your body and the crossing point. The rope will be wrapped around your hand.

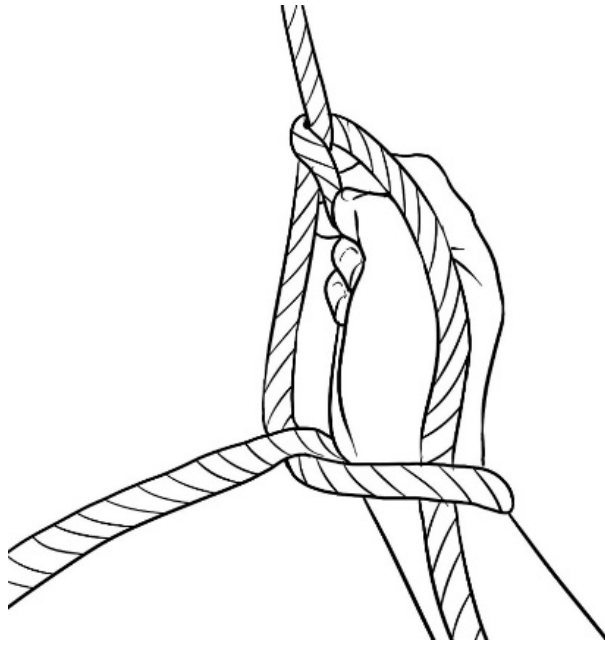


Using your fingers, but without letting go of the rope, pass the running end under the standing part just beyond the first crossing point. This creates a second crossing point.

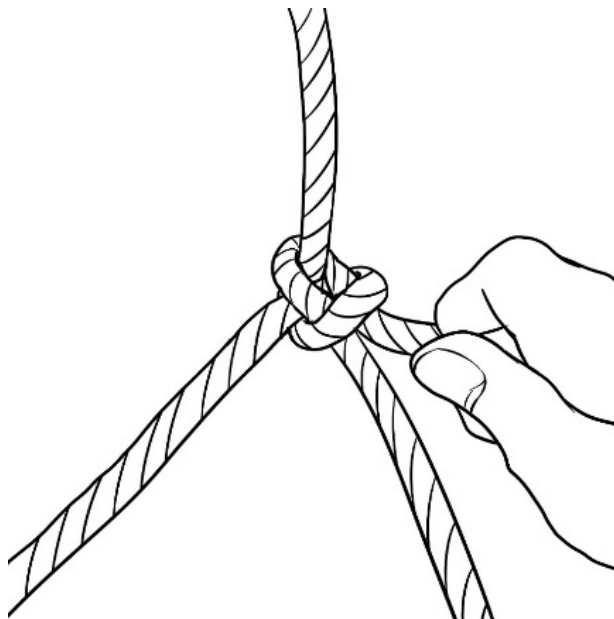


Continue to maneuver the running end with your fingers so that it feeds between the two crossing points. It feeds from the top down. It should end with you holding the running end.





Once that is accomplished pull your hand out from the loop on your wrist bringing the running end with you. Pull the knot tight.



## RIVER CROSSING WITH ROPE

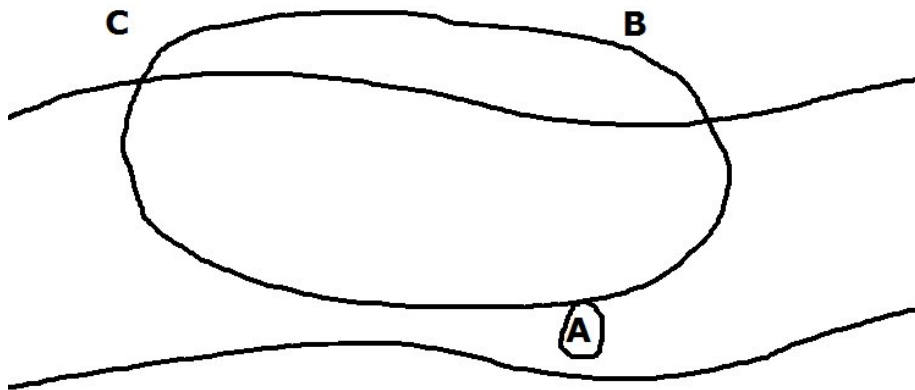
In a survival situation crossing a river can be an extremely risky venture. Using this method will deplete a lot of the risk, although it will still be very risky.

You need at least three people and a rope three times the width of the river.

The first and last people to cross should be the strongest in the group, with the stronger of the two going first.

Tie the rope into a large loop and secure the person who is going to cross first (person A) to the loop, e.g., tie a butterfly loop in the rope and put it over his/her chest.

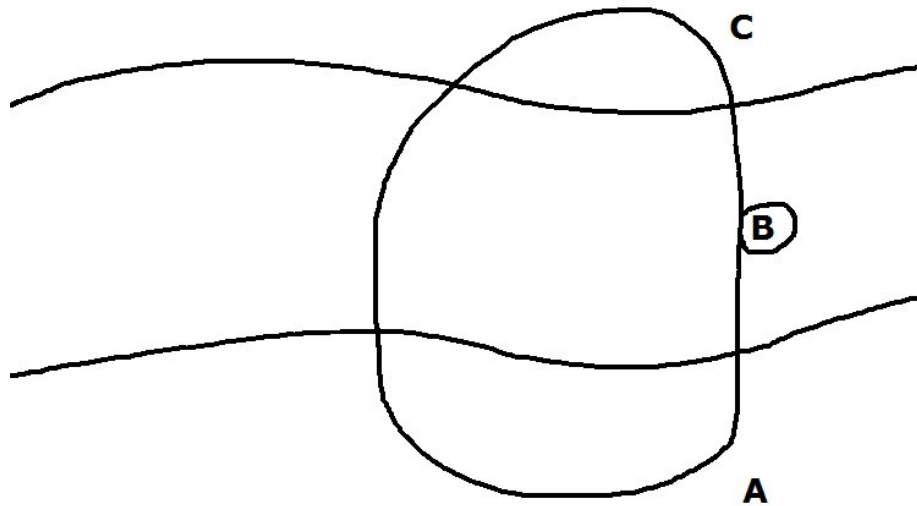
As person A crosses the other two let the rope out as needed. They must do their best to keep the rope out of the water, and be ready to haul person A back if needed.



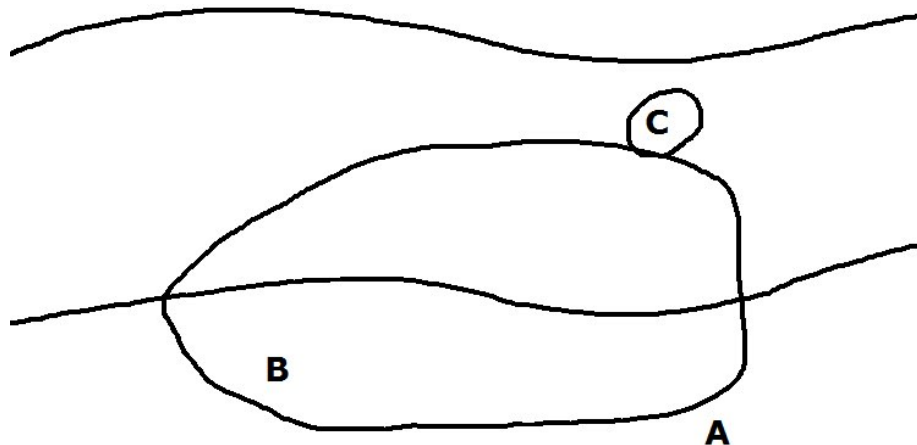
Person A is the only one secured to the rope.

When person A reaches the other side he/she unties him/her-self.

As many people as needed can now cross (B), one at a time, by securing themselves to the rope and crossing over.



Although multiple people can help while others are crossing, the strongest person (A) should take most of the strain by being as close as possible to directly across from the person crossing.



## **MAKING A GILL NET**

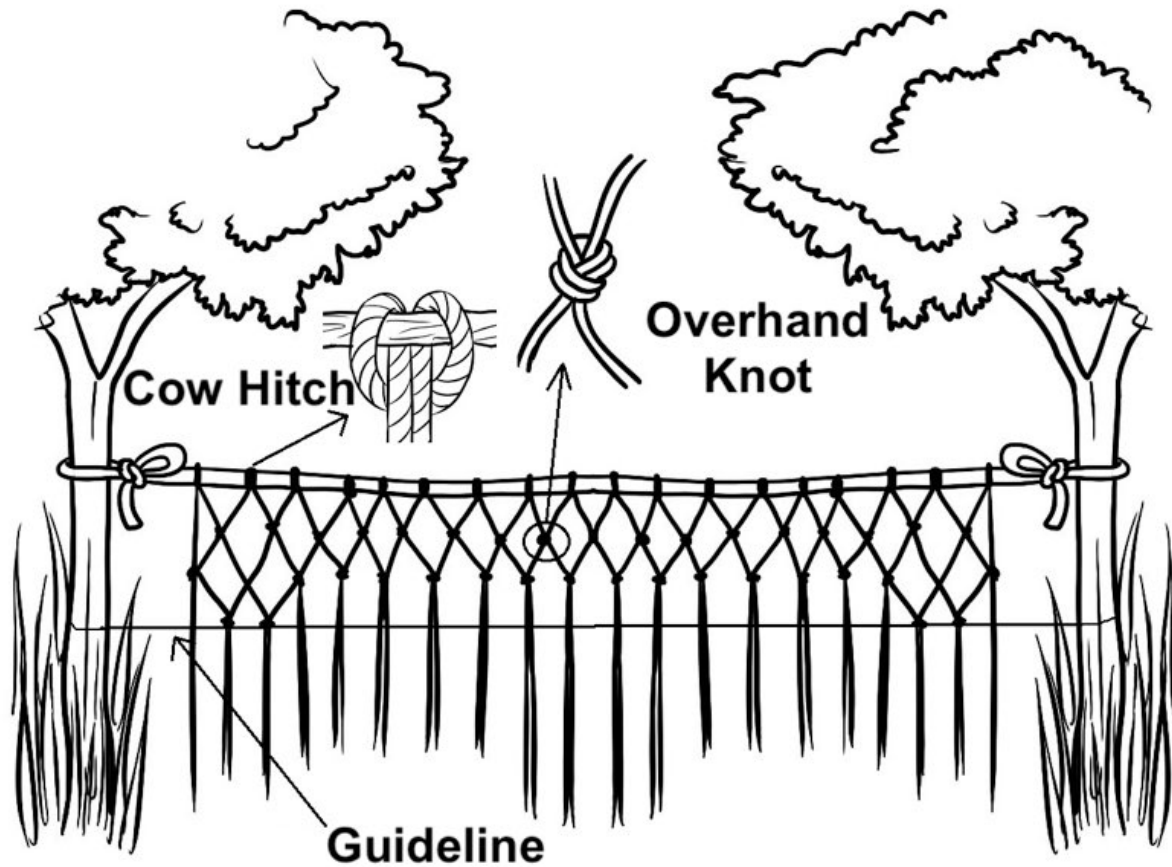
A gill net is time and resource intensive to construct but is very effective to catch marine life (or birds) in a survival situation.

Tie a suspension line between two trees for you to work off.

Get many lengths of cord and tie them to the suspension line using cow hitches. Space them about 10cm apart.

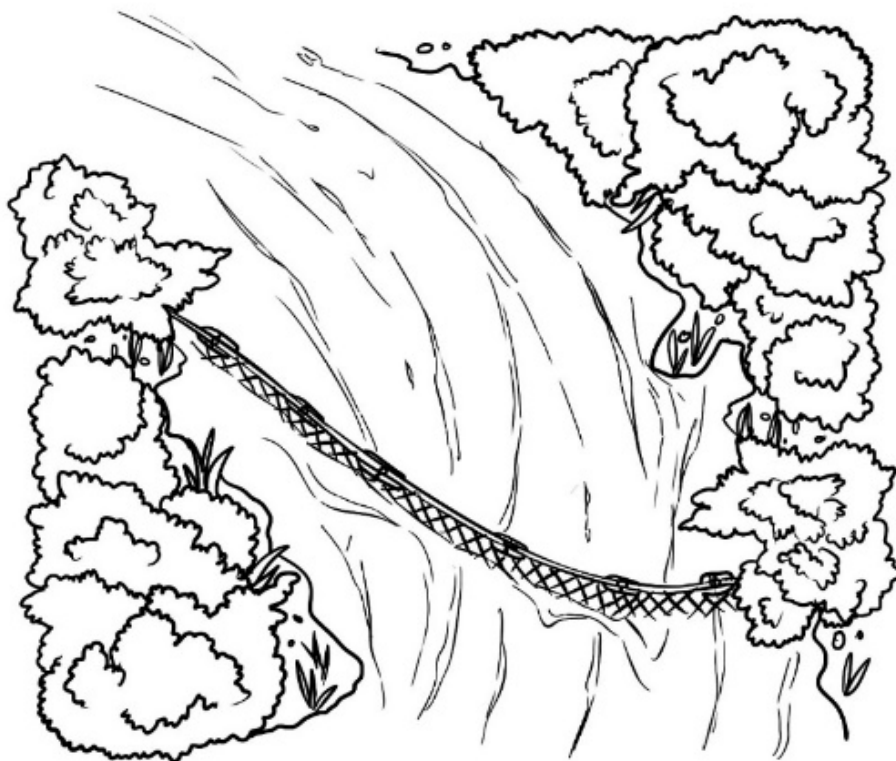
Tie the separate lines together using overhand knots. Vertically space them about 10cm apart.

Another line can be tied between the trees as a guideline. Use the guideline to ensure you tie the joining overhand knots at the same height.



Once finished you can attach floats at the top and weights at the bottom. This will keep the net vertical in the water.

Stretch the gill net across a river. It is most effective in still water, e.g., a lake (near the inlet and outlet are good locations) or in the back water of a large stream.



The gill net will catch everything so do not deploy it for very long.

When in open sea pass a gill net under the keel from end to end. It will catch whatever is attracted to the shelter created by your raft.

## MAKING ROPE

Rope (cord, string, etc.) is extremely useful and can be improvised from many different materials, e.g., fabric, fishing line, shoelaces.

When there is no other material available (or you are not willing to sacrifice it) then other common materials can be made into rope.

Suitable materials include:

- Animal hair.
- Inner Bark (Cedar, Chestnut, Elm, Hickory, Linden, Mulberry and White Oak work well). Shred the plant fibers from the inner bark.
- Fibrous stems (Honeysuckle and Stinging Nettles work well).
- Grasses.
- Palms.
- Rushes.
- Sinew (dry tendons of large game).
- Rawhide.
- Vines (strong vines can be used without any other preparation, but plant fibers spun together will be more durable).

### **Making Rope from Plant Material**

When you think you have a suitable plant material see if it can withstand the following tests.

***Note:** Stiff fibers can be softened with steaming or soaking them in water.*

- Pull the ends in opposite directions.
- Twist and roll it between your fingers.

- Tie an overhand knot.

To turn the material into rope you will twine it together.

Collect a small pile of your material. Divide it in half and rotate one half before recombining them. This ensures an even consistency in your rope.

Get a bunch of the material depending on how thick you want your cordage/rope.

Knot the material together at one end.

Divide the remaining side of the bundle into two even sections and twist them both clockwise to create two strands.

Next, twist one of the strands around the other in a counter-clockwise direction. Tie the end to prevent it unraveling.



You can join shorter lengths together by splicing them. Do so by twisting the ends of their strands together, i.e., while they are in two strands, before the counter-clockwise twisting. Twist one small bunch on each side (for



each of the strands) and then just continue to twist as before. You can do this as much as you want until you get the desired length of rope you need.

Thicker ropes can be made by using larger bundles of grass or by twisting multiple ropes together.

## **Making Rope from Animals**

In a survival situation you may be fortunate enough to capture game. Waste nothing.

### **Sinew**

Sinew is an excellent material for small lashings.

Remove the tendons from game animals and dry them.

Once they are completely dry hammer them until they are fibrous.

Add some moisture so you can twist the fibers together. You could also braid them together which will be stronger.

Sinew is sticky when wet and hardens when dry. You can lash small items together (while the sinew is wet) and since it dries hard the actual use of knots is not necessary.

### **Rawhide**

When the job is too big for sinew, rawhide can be used.

Skin any medium to large game and clean it (the skin) very well - no fat or meat. Hair/Fur is okay.

Dry it completely. If there are folds that will capture moisture you will need to stretch the skin out.

Once dry cut it into a continuous 5mm to 10mm wide length. The best way to do this is to begin in the middle of the skin and cut circularly out, expanding the spiral as you go.

To use the rawhide soak it until soft. This usually takes two to four hours. Use it wet and stretch it as much as you can as you do so. Leave to dry.

## THROWING ROPE

Knowing how to throw rope properly will greatly increase the distance you can throw it.

When throwing rope, in most cases you should aim to over-throw it.

If you intend to keep one end of the rope (which is usually the case) be sure to secure it to something.

***Note:** Even when throwing all the rope to someone it is a good idea to secure one end. If your throw does not make it over the obstacle you can pull it back, and if it does make it then just un-secure it and your friend can pull it over.*

Tie a weight or a bulky stopper knot to the end you are going to throw over.

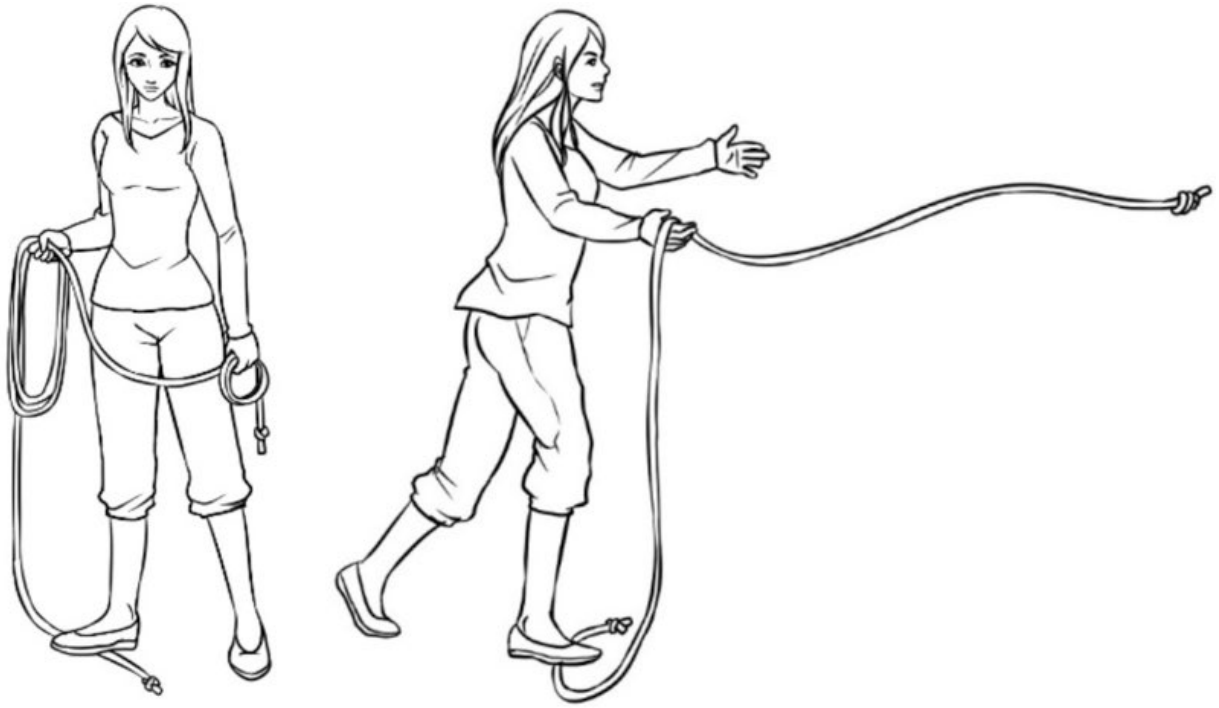
Coil half the rope on the palm of your right hand.

Coil the rest of it on your fingers.

Stand on one end to secure it, or tie it to something.

Grab the coils you made on your fingers with your left hand.

As you throw release the right hand coils a split second before the left.



When throwing a weighted rope over a branch beware of it swinging back.

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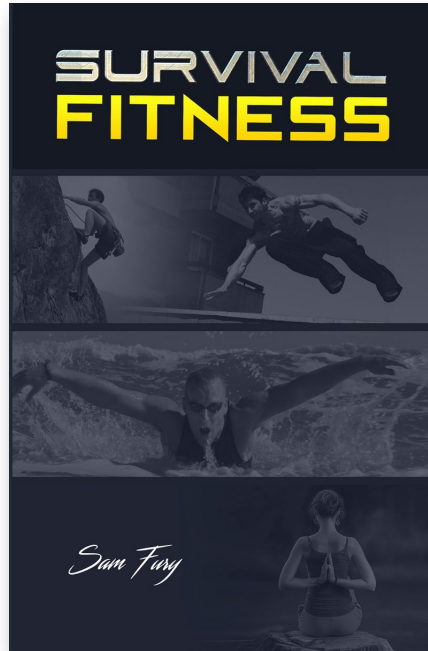
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Thanks again for your support,

**Sam Fury, Author.**

## AUTHOR RECOMMENDATIONS



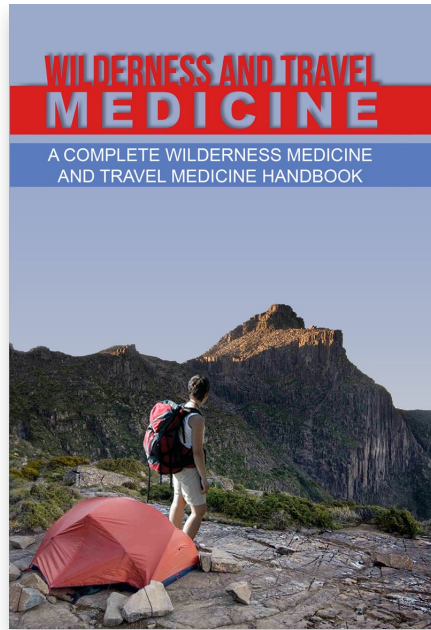
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## ABOUT THE AUTHOR

Sam has had an interest in self-preservation & survival for as long as he can remember. This has lead to years of training and career-related experience in related subjects.

He describes himself as a “Survivalist, Minimalist, Traveler” and spends his time exploring the world, learning new skills, and sharing his knowledge through his books.



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